



LISBON  
SCHOOL OF  
ECONOMICS &  
MANAGEMENT  
UNIVERSIDADE DE LISBOA

# **MASTER OF SCIENCE IN FINANCE**

## **MASTERS FINAL WORK PROJECT**

**EQUITY RESEARCH:  
STORA ENSO OYJ**

**PAULA ALEXANDRA TAPIERO MORENO**

**NOVEMBER 2020**



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**SUPERVISOR:  
VICTOR MAURÍLIO SILVA BARROS**

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# Abstract

In this Master Thesis was examined valuation elements of the company STORA ENSO OYJ, included and emphasized in the final investment recommendation.

The present report adopts the equity research format guided by the CFA institute following its structure and ISEG's Master final work project standards. It contains 8 chapters including Research Snapshot, Business Description and Management, Corporate Governance, and Industry Analysis. Accordingly, it analyzes the financial and management situation of the past three years (2017 to 2019) and forecasts the operations for six more years (2020 to 2025) to provide the financial overview, investment summary, valuation, and investment risks.

The price target was reached through the Discounted Cash Flow valuation method based on the Weighted Average Cost of Capital and also the Cost of Equity. Additionally, it is performed Multiples valuation and the Discount Dividend Model.

The final recommendation for STORA ENSO OYJ endorses to HOLD, with a price target of €14.02 per share by the 2021-year end, representing an upside potential of 11.2%, in comparison with the closing price of €12.60 per share on October 30<sup>th</sup>, 2020 with medium risk. It is important to highlight that the present report is performed during an unpredictable economic situation as it is the COVID- 19, its effects include it and emphasized in the research.

JEL classification: G10, G17, G33, G34, G39.

Keywords: Equity Research; Valuation; Paper and Forest, Discounted Cash Flow, Multiples, Covid-19

# Acknowledgements

This master thesis represents a remarkable milestone in my academic journey, more than a project it is a great accomplishment that will lead the path for the rest of my life.

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Finally, I would like to express my gratitude to my family. Who always encouraged me to be the best version of me. I couldn't have done it without all your support. It was not always easy, but we made it!

# Abbreviations

AGM	Annual General Meeting
BD	Business division
BOD	Board of Directors
CAGR	Compound Annual Rate Growth
CAPEX	Capital Expenditure
CAPM	Capital Asset Pricing Model
CEO	Chief Executive Officer
CF	Cash Flow
CFO	Chief Financial Officer
D&A	Depreciation & Amortization
DCF	Discounted Cash Flow
DDM	Discount Dividend Method
EBITDA	Earnings Before Interest, Taxes, Depreciation & Amortization
EPS	Earnings per share
EUR	Euro
EV	Enterprise Value
F	Forecast
FCFE	Free Cash Flow to Equity
FCFF	Free Cash Flow to the Firm
g	Growth rate
GDP	Gross Domestic Product
HA	Hectares
M	Million
PP&E	Property, plant, and equipment
ROA	Return on Assets
ROE	Return on Equity
STE	Stora Enso
TP	Target Price
TV	Terminal Value
UN	United Nations
VR	Voting Rights
WACC	Weighted average cost of capital
Y	Year
YE	Year-end
YoY	Year over Year

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# STORA ENS OYJ: Transforming the forest industry

(2021YE Price Target of € 14.02 (+11,2%); recommendation to **HOLD** with Medium Risk, STERV.HE, OMX Nordic Exchange Helsinki Oy)

## Research Snapshot

The recommendation for STORA ENSO OYJ (STE) stands for a **HOLD** with a 2021YE price target of €14.02, using a DCF (FCFF) model, implying a +11.2% upside potential from October 30<sup>th</sup>, 2019 closing price of €12.60, medium risk. The relative valuation through multiples and DCF (FCFE) supports the recommendation. STE is a mature company managing a cost-efficiency strategy supported in the integrated wood supply, accounting €3.6 billion in biological assets 2019YE.

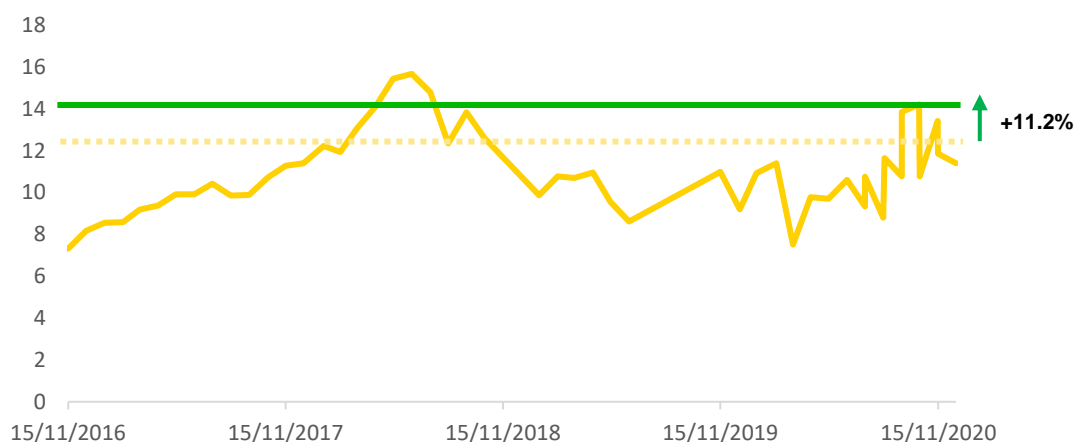


Table 1: STE Market data.

Market Profile	
Closing Price	€ 12.60
52- Week price range	€ 7.25 - € 14.78
Average Daily Volume	1,892,582
Shares outstanding	788,620,000
Market Capitalization (EUR '000.000)	12,430.54m
Dividend Yield (2019F)	1.12

Source: Thomson Reuters.

## Revenue growth

Considering the forest and paper industry's overall market condition, the annual growth revenue for 2021F – 2023F is forecasted to gradually increase 1.90% CAGR through four years, recovering from the 14.35% sales decrease in 2020F.

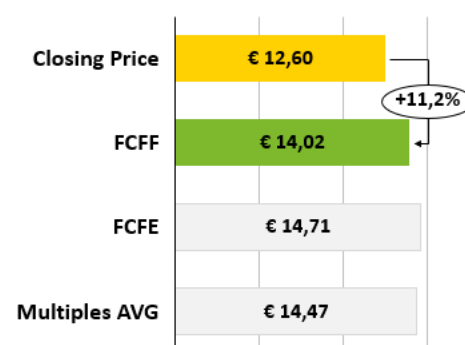
## ROE decelerates

STE has kept on average an ROE ratio around 12%, given the recent economic condition due to Covid-19 STE will decelerate this advantage but as an industry benchmark will maintain its lead in the market.

## Cost Efficiency

The recent transaction in 2019 of Bergvik Skog's forest holding in Sweden increased forest by 1.4 million Ha (Hectares), aims to further increase harvesting by 10% - 15% (0.5 M3 additional) which reinforce efficiency. Increasing harvesting will increase the yield in the forest up to 10%.

Figure 1: STE Target price



Source: Author.

### Gradually adapting

Since 2006 STE started transforming the paper division by decreasing the capacity and reinforcing the cash flows. This leads to a company that anticipates to economic and market conditions. Considering, the present Covid-19 impacts and the accelerated decrease in paper sales, STE is prepared to boost packaging by transforming 20% of paper capacity into 450.000 tones to packaging purposes.

## Business Description

**STORA ENSO OYJ** (SEO, Reuters: STERV.HE) is a Swedish-Finnish company manufacturer of pulp, paper and other forest products and renewable solutions, headquartered in Helsinki, Finland. Formed in 1998 as a merge of the companies Enso Oyj (Finnish) and Stora Kopparberg Bergslags Aktiebolag (Swedish), its roost come from the nearly 1300's. STE has had many forms and diverse operations, overseas expansion, mergers, and acquisitions.

The first documented operations of Stora encompass mining, iron, and wood activities in Sweden since 1288, forestry was always a crucial part of the company. However, in 1970 Stora sold the mining and metal operation to center in the forestry business. Enso dates back to 1872 with the first steam-powered sawmill founded in Kotka, Finland. After several mergers and acquisitions over time Enso had become one the largest Finland's largest forestry company, in 1996 the company took the name of Enso OYJ.

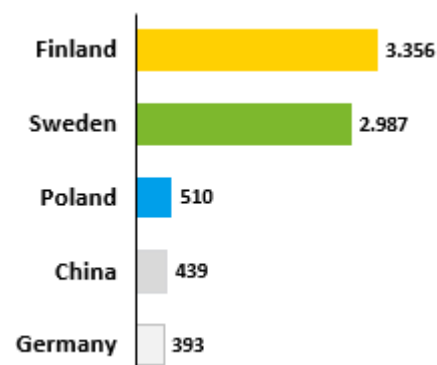
The group is managing a geographically diversified portfolio in 30 countries, with a leading strong position in Europe, the major markets 2019YE are: Finland (33.4%), Sweden (29.7%), Poland (5.2%), China (4.8%) and Germany (4.4%) (Figure 2). STE is divided in 6 business divisions (BDs) – Consumer board (21,6% 2019YE EBITDA), Packaging solutions (10.5%), Biomaterials (17%), Wood products (7.7%), Paper (13.7%) and forest division (28.4%) (Figure 3), which is created to start its operations in the beginning of 2020 and its focus areas are sustainable forest management, competitive wood supply to Stora Enso's mills and innovation.

In 2019YE, 72% of sales came from the growing business of packaging, wood products and biomaterials, over 7% of 2019YE sales came from new products and services (Figure 4).

### Consumer Board

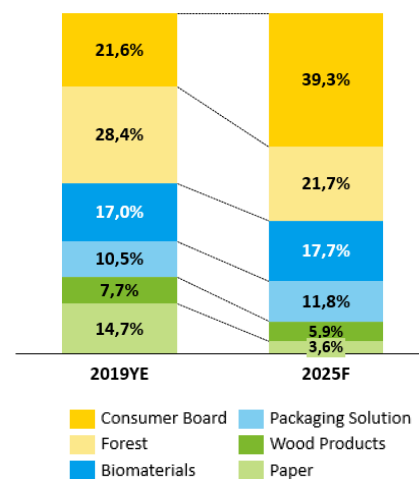
STE is one of the largest producers of virgin fiber board in the world. EU legislation around single-use plastics is driving up the demand for fiber-based materials. Substituting plastic packaging with fiber can make a substantial contribution to meeting the EU's CO2 targets. 2019YE sales of new products of the consumer board BDs were 17%, exceeding 15% of the target level. It has an Operational EBITDA Margin of 16.9%

**Figure 2:** Top 5 counties by sales (Million EUR)



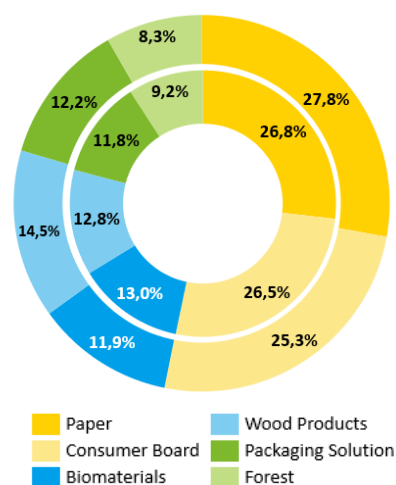
*Source: Company data. (2019)*

**Figure 3:** Consolidated EBITDA by BDs. 2019YE vs. 2025F



*Source: Author.*

**Figure 4:** Consolidated sales by BDs. 2019YE (inside) vs. 2025F (outside)



*Source: Author.*

## Packaging Solutions

STE is a leader in the renewable packaging industry, it has a leading status in the Nordics, second in the Baltics and Poland, third in China and fifth in Russia. The market is fragmented in both containerboard and corrugated packaging with many larger and smaller players, STE has built many partnerships with larger brand owners. The total retail e-commerce sales are forecasted to growth (15% CAGR 2018–2022); this will drive growth in corrugate packaging. It has an Operational EBITDA Margin of 17%

## Biomaterial

STE biomaterial has a strong business portfolio in bio-based products that cover the increasing demand of paper, board, tissue, textile, hygiene products, and potential use in various applications from biomass fractions (lignin, tall oil and turpentine). This BD is expected to generate 10,1% of revenues 2021YE increasing due to megatrends such as eco-awareness, changing lifestyles, and growth in the middle class where GDP is expected to grow from nearly 23 trillion in 2017 to 64 trillion by 2030 (Figure 5). Biomaterials have an Operational EBITDA Margin of 24.3%.

## Wood products

STE is the largest supplier of wooden solutions for construction in Europe and the fourth globally with customers in more than 60 countries. The growth for sawn softwood products is estimated to be 2-3% annually. Wood products have an Operational EBITDA Margin of 9.8%

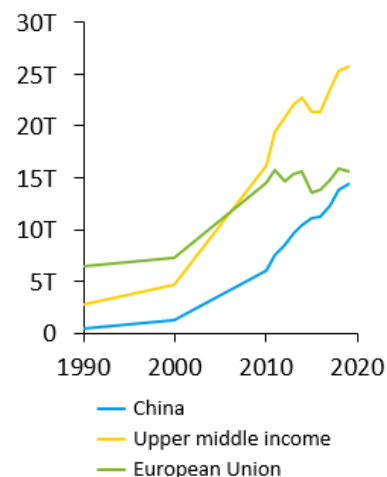
## Paper

STE is the second largest paper producer in Europe, however, due to a market decline demand the company is targeting to increase the production of kraftliner instead of paper, this will contribute reducing complexity and costs which are mainly wood and chemical costs. Despite the overcapacity on the market the local prices were higher in all segments (+1% 2019YE), (Figure 6). Paper has an Operational EBITDA Margin of 11.1%

STE Mills are currently dedicated to the production of various types of fiber pulps and paper. The production focuses on biomaterial, wood products, paper, and consumer board BDs, accounting 92% of the installed capacity (around 22 million tons in 2019) (Figure 7). In 2020, STE was converting the Oulu paper mill in Finland into packaging production – virgin-fiber based kraftliner – with an increase of the annual capacity of 450.000 tones. The production is estimated to start by the end of November 2020. The reduction on paper capacity will be 20%.

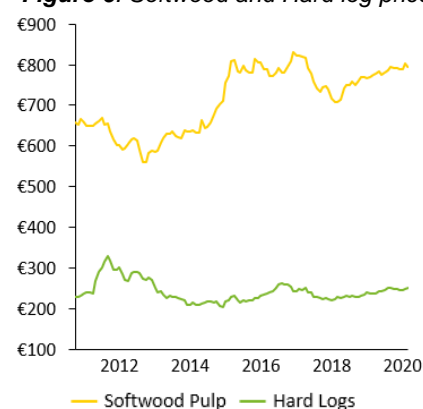
STE's sales are concentrated in Europe (87,9%) of which 33,4%, 29,7% are sold in Finland and Sweden respectively. (Figure 8). The Asian market has a fast-growing demand in consumer board and packaging, especially in China, where STE has four packaging plants. Consumer board and Packaging imports in China increased 2,72% CAGR 2010 – 2019 (Figure 9). In 2019, Asia accounted for around 17% of sales by destination. In 2019, STE bought out non-

Figure 5: GDP growth.



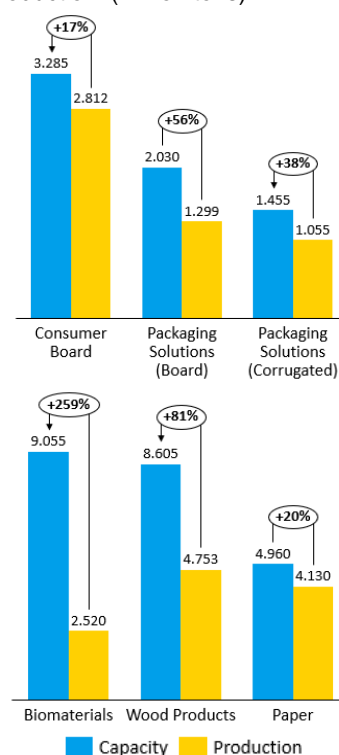
Source: World Bank

Figure 6: Softwood and Hard log prices.



Source: Indexmundi

Figure 7: Installed Capacity vs. Production. (Million tons)



Source: Company data. (2019)

controlling interests of the China Packaging group, the ownership increased to 100%.

Fiber, chemicals, and energy are the main inputs in the production process of Stora Enso. The company owns 1,987,000 ha of land (Table 2) that reinforce the wood supply and manages leases and long-term harvesting rights for 372.600 ha of land, allowing a more efficient and sustainable operation.

## Company Strategies

**Financially strong position:** STE has a strong cash flow generation and continuous sales of non-core assets. According to organizational policies, the company reduce the CAPEX to the level of depreciation and depletion. Moreover, STE dividend policy strives to pay stable dividends linked to the long-term performance and to distribute 50% of EPS over the cycle, dividends increased by 10-12% in 2015 to 2017 and 22% by 2018, for 2020 due to Covid-19 effects the Board of Directors (BOD) has decided to change its dividend proposal in the AGM, from EUR 0.50 to EUR 0.15 per share. However, whenever possible to estimate more reliable impacts it is expected to maintain the dividend policy.

**Key divisional financial targets:** As all divisions operate in very diverse business environments the targets vary. These targets enable the markets to follow each division performance. The target for paper focuses on cash flow generation while the rest of BDs on Operational ROOC (Operational Return on Operational Capital) within a 5Y horizon.

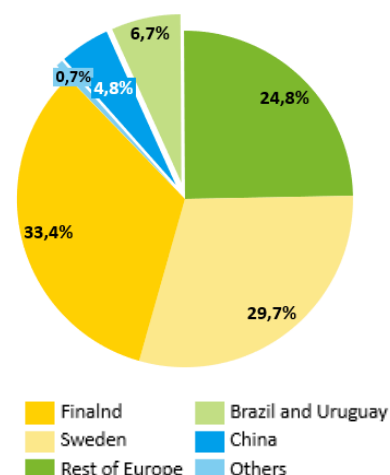
**Circular Economy:** STE aim to create a circular economy from dependency on finite or fossil-based materials towards materials and solutions that are renewable, recyclable and with low or zero carbon footprint, within all the organization; where resources are kept in use for as long as possible, reusing and finally recovering materials for other purposes. To peruse this strategy the company, follows 5 steps:

- Design for the whole system and all stages of the product lifecycle instead of just designing the product.
- New business in the circular bioeconomy where products are bio-based.
- Extended value with customers and partners to develop circular solutions to replace plastics and cut down on waste along the supply chain.
- Zero waste to minimize and optimize resources used to create value.
- Biodegradability where recycling energy recovery is promoted to create further value.

## Shareholders structure

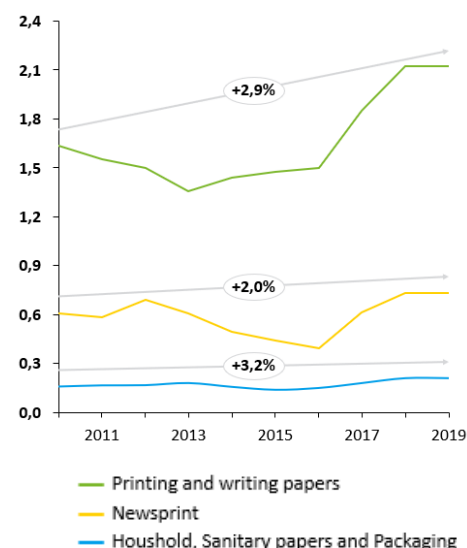
Stora Enso's largest shareholder is Solidium Oy (Entirely owned by the Finish state) with 10.7% ownership and controlling 27.3% of

**Figure 8:** Sales by origin. 2019



Source: Company data. (2019)

**Figure 9:** China imports quantity. (Million tons)



Source: FAO

**Table 2:** Distribution of Stora Enso's land.

Country	Ha	Fair Value
Sweden	1,388,000	2,600 M
Finland	250,000	
Estonia	24,000	595 M
Romania	5,000	
Uruguay	126,000	199 M
Brazil	112,000	75 M
China	82,000	166 M

Source: Company data. (2019)

Voting Rights (VR), FAM AB, a Swedish Holding is the second largest owner by 10.2% ownership and 27.3% of VR. The third-largest shareholder is Social Insurance Institution of Finland (KELA) with 3.1% ownership and 10.1% of VR, followed by Finnish Institutions with 12.5% ownership and 8.8% of VR. The fifth-largest shareholder Swedish Institutions with 9.3% ownership and 6.1% of VR. The remaining 54.4% ownership belongs to 4 different groups of private shareholders but only controlling 20.6% of the VR (Figure 10).

STE issued its firsts green bonds in February 2019, collecting SEK 6 Billion, this capital solely used to finance the acquisition of forest assets in Sweden (Tornator) and were 100% allocated by the end of 2019.

## Management & Corporate Governance

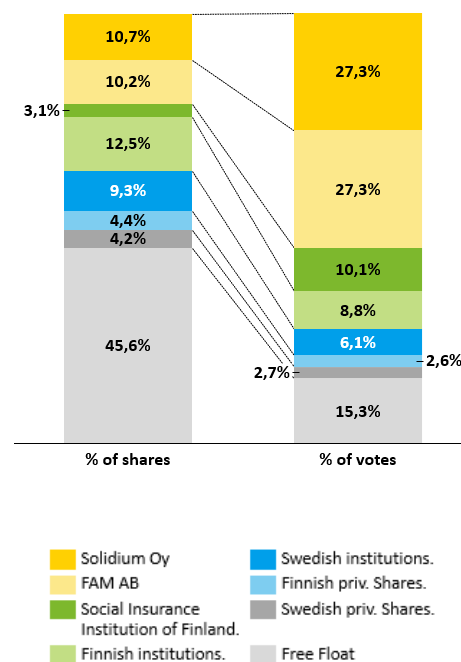
Nine members compose Stora Enso's Board of Directors (BOD), all of them are independent of the company and from significant shareholders with the exception of Richard Nilsson (Investment Manager at FAM AB), Göran Sandberg (Executive director of majority shareholders of FAM AB) and Antti Mäkinen (CEO of Solidium). The BOD is managed in accordance with the Finnish Corporate Governance Code (FCGC).

Members are elected in the AGM for a one-year term, at least two of the directors comprising this majority shall be independent of significant shareholders of the company and a significant shareholder (holds at least 10% of all the Company's shares), or the votes carried by all the shares or a shareholder that has the right or the obligation to purchase the corresponding number of already issued shares.

## Board Committees

- **Financial and Audit Committee** formed by 3 members - established to support the BOD and maintain company's financial reporting integrity. This committee reviews and monitors the system of internal control and internal audit as well as its efficiency, management and reporting of financial risks. The Company's procedures for monitoring related party transactions and the annual corporate governance statement. The Committee has increased its focus on IT security and closely monitors related risks.
- **Remuneration Committee** comprised 3 members - established to be in charge of the recruitment process relating to a new CEO's election. Additionally, the main tasks of the Committee are to recommend, evaluate and approve executive nominations and remunerations.
- **Sustainability and Ethics Committee** comprised 3 members - it is responsible for overseeing the company's sustainability and ethical business conduct, it is responsible for the corporate citizen, and its contribution to sustainable development.
- **The CEO chairs group Leadership team (GLT)**, has 11 members appointed by the CEO and approved by the BOD, all

Figure 10: Shareholders Structure.



Source: Company data. (2019)



the members are the CFO, the heads of the divisions, HR, Legal (who is also General Counsel), Communications, Sustainability, and Sourcing and Logistics.

## Social Responsibility

Stora Enso's strategy underline sustainability in all the value chain. The company based every decision by pursuing that "Anything made from fossil-based materials today can be made from a tree tomorrow". This leads to a continuous commitment to the environment by driving the transition from a fossil fuel consuming world into a sustainable future based on the bioeconomy. Throughout the value chain, the sustainability agenda encompassed all operations' social, environmental, and economic responsibility. One of the most notable key performance indicator (KPIs) for sustainability is to reduce by -35% in CO<sub>2</sub> by the end of 2030 from 2010, the equivalents CO<sub>2</sub> per saleable tonne of board, pulp, and paper (kg/tonne). The KPIs in 2019 is -25%. Contribute to a low-carbon economy is critical given one of the most significant challenges of our time, global warming (Figure 11).

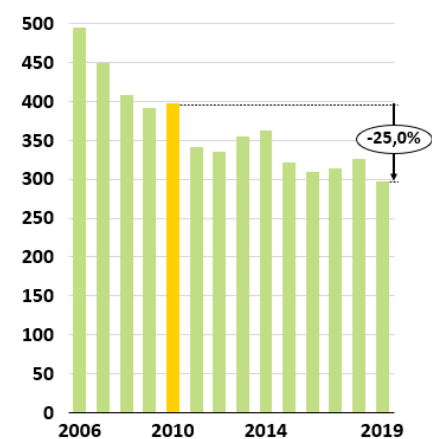
## Industry Overview & Competitive Positioning

### Paper and Forest Industry Overview

Forest Industry in Europe has grown over the years, in North Europe is mostly privately owned and focuses on wood production. There is an intensive use of resources and a sophisticated and well-resourced institutional structure. In Europe total forest area comprise 1,017 Million Ha (Hectares), 25% of the world forest area. 514 Million Ha, available for wood supply. World forest area decreased from 2000 to 2020 -0.12% CAGR while Europe increased by 0.08% CAGR (Figure 12). Europe produces and consumes a very large volume of forest products. The forest sector accounts for about 2,9% of European GDP (2017) and employs some 3.1 million people (Figure 13).

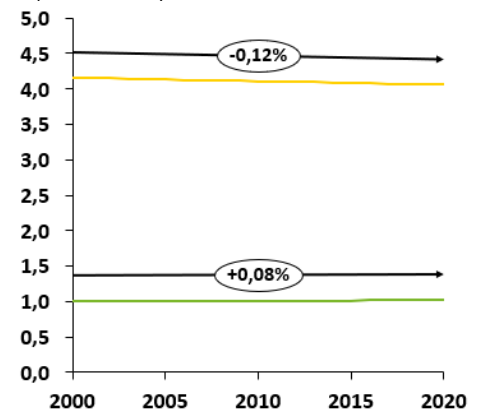
The paper industry is mainly based on the production of the wood as a raw material. In 2017 the global consumption of paper and paperboard was 423.3 million metric tons with a CAGR of 0,7% throughout 2010-2017. In 2017 China and the USA reported 43% of the global consumption of paper and paperboard. Nonetheless, China has a paper consumption per capita of 78 kg, compared to the US and Japan who consumes more than 200 kg per capita. In term of production, China and the USA are the largest, followed by significantly smaller producers in Japan and Germany. The global production is 409 million metric tons. China and the USA together held 45% in the production of paper (Figure 14). However, China is relatively a small player in terms of export and import of paper. Germany is the leader in this aspect, followed by the USA, Finland, and Sweden. 61% of all the paper production is for corrugated material, printing and writing paper.

**Figure 11:** Stora Enso Historical emission CO<sub>2</sub> in relation to production.



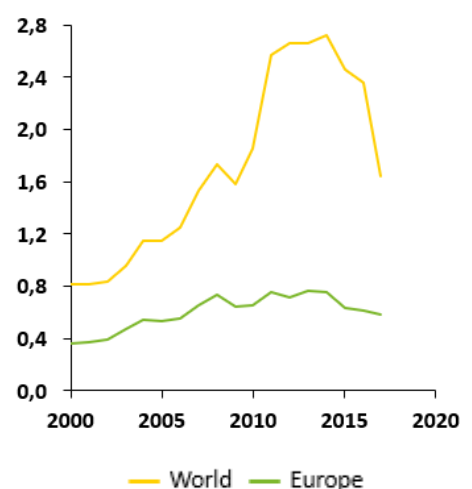
**Source:** Company data.

**Figure 12:** Forest area. World vs. Europe. (Millions Ha)



**Source:** FAO

**Figure 13:** Output forest and agriculture industry. World vs. Europe (Million USD)



**Source:** FAO

The Paper & Forest industry can be considered as a mature industry. There is slight growth, considering a CAGR of 0,7% throughout 2010 to 2017 in the consumption. The barriers are high to enter this industry because of the considerable market cap the largest companies take in and the big initial investments. Some companies in this industry are globally one of the oldest companies, so improving the internal efficiencies and extending successful products has more focus than reinvesting or developing. The global M&A activities in this sector continuous declining over the years. comparing the first 3Q of 2019 with the first 3Q of 2018, the total deal value has declined with 74%. On the other hand, the total deal volume declined by 19%, which leads us to the conclusion that there is occurring a lack of large deals.

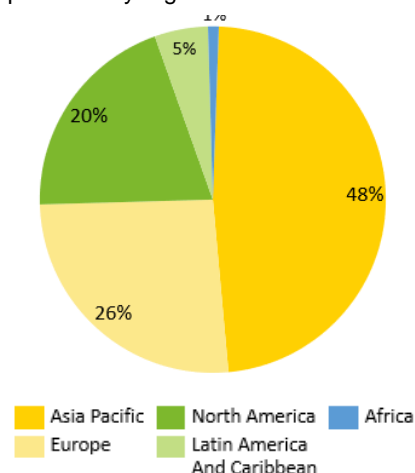
The forestry market can be considered an oligopoly, with some elements of monopolistic competition. There are a few significant players and smaller players, the product is homogeneous and the barriers to exit the market are also high due to the initial capital requirements and certifications. The industry has a variety of players in a sector relatively concentrated with medium and large firms around the world.

The larger firms are concentrated in pulp and paper manufacturing understanding that all the forest-based sector has other several participants. More than half of world consumption occurs in China, the USA and Japan (around 200 million tons). Even though paper consumption is declining slightly in North America, it is notably rising in Asia and driving industry's planned expansion (Figure 15).

The forest Industry encompasses 5 important commodities, which are wood raw material, sawn wood, wood-based panels, pulp and paper and paper board. According to the United Nations Trade Statistics database, in 1993-2008, global exports of these main commodities faced an annual growth rate of about 6.3%. For 2010-2030, a growth rate of 3.7% is projected due to a modest GDP development. For the European region the average annual growth rate in the period 1993-2008 was about 8.2%, the share in world trade increased 32% in 1993 to 50% in 2008, about 80% of this trade was within European countries.

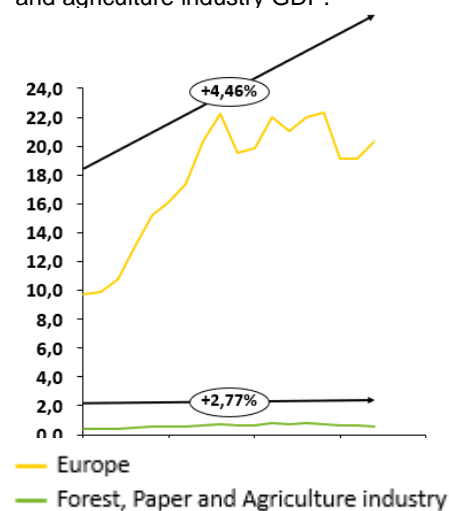
Price projections show an increase in the period from 2010 to 2030 according to the UN. Sawlog and pulp price increase by 1.8% to 2.7% per year, while final forest product prices increase only 0.6% to 1.3%. This might indicate a lower profit margin for the forest industry but higher prices for the forest owners. The total revenue for paper and paperboard market in Europe was €87.6 BN in 2018 with a CAGR of 2.3% from 2014 to 2018. The German Market is the largest in Europe with a CAGR of 2.8% (Figure 16).

**Figure 14:** Global production of paper and paperboard by region. 2018.



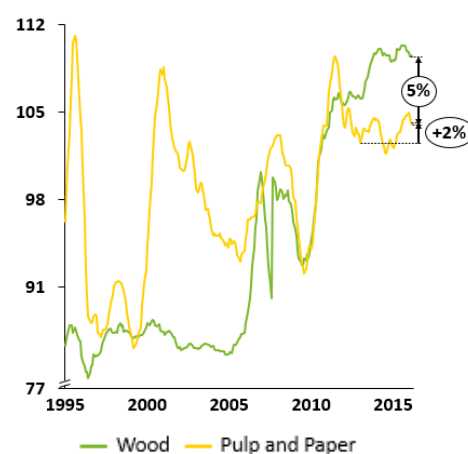
**Source:** FAO

**Figure 15:** Europe GDP vs. Forest paper and agriculture industry GDP.



**Source:** FAO

**Figure 16:** Evolution of producers' price index. Wood vs. Pulp, paper, and paperboard.



**Source:** ECB



## Key drivers of profitability

One of the most important key drivers of profitability is pulp price (raw material for paper producers) even though is in a downward trend in 2019. Average pulp price is (-21%) 2019 at €826/ton in 2019 which are still considered high since in absolute values the average pulp price since 2013 was €683/ton. Even when the paper industry has been decaying during the past years, the paper price has increased. Nevertheless, the accelerated decline in the paper division given the change in consumption and the Covid-19 effect is no offset by an increase in price.

The paper and forest industry are also energy-intensive sectors, which may also impact profitability. Although energy costs are rising worldwide, the industry has become more energy self-sufficient by improving process efficiency since it is generating more than 50% of its primary energy from biomass. On the other hand, Forest is a valuable asset continually growing to secure long-term supply and, consequently, secure the business.

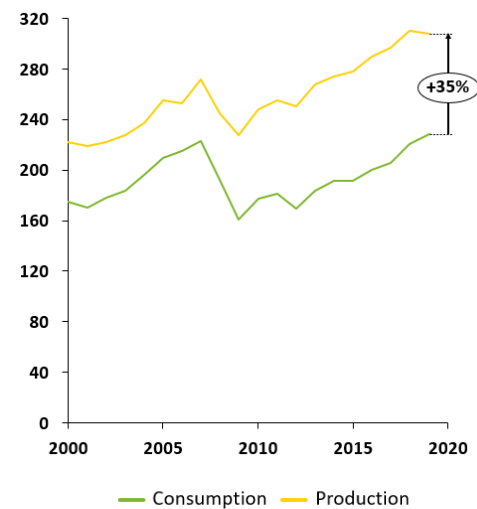
The packaging business, building solutions and biomaterials innovations are the key focus growing drivers, representing 70% of the EBITDA margin with potential profitable growth and leading the regional position in Northern and Eastern Europe as well as China. The packaging market worth €850 Billion and it is growing by 4,5% per year globally.

## Supply Vs Demand

The UN estimates gradually increasing demand for wood over the coming 10 years, driven by GDP growth. Due to the increased demand for wood for energy, wood prices are likely to increase. The forest resource continues to expand but the difference between the felling and this increment is not sufficient, this might imply greater efforts for the supplier countries to fulfil the demand. The projected discrepancy between the supply and demand is around 20%. Germany, Italy, and the UK are the largest importers of sawn softwood in the subregion, accounting for 40% of the total volume. Domestic demand for sawn softwood in Russia is expected to increase to 24.7 Million M<sup>3</sup> in 2030. Sawn Hardwood consumption and production are staked mainly thanks to inexpensive home furnishings and cabinetry made from composite wood products and nonwood materials.

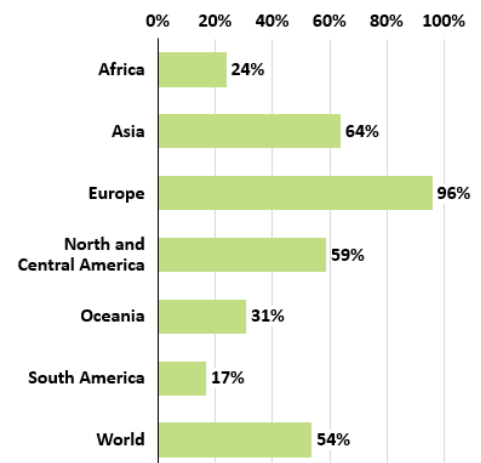
Structural demographic changes, environmental changes and resource scarcity are today's main drivers of demand. There has been a shift in consumer choice mainly due to the increased awareness of sustainability, plastic decomposition, and the shift to digitalization. In 2017 the 5Y CAGR of 0,7% resulted from the negative CAGR of the types of printing/writing paper (23% consumption) and newsprint (5% consumption), tissue and containerboard increased China and the USA had 43% of the global consumption.

**Figure 17: Production vs. Demand.** (Sawnwood, pulpwood and hardboard) Europe. (Million M3)



Source: FAO

**Figure 18: Portion of forest areas with long term management plans. (2020)**



Source: FAO

The demand for paper board has contributed to an increase of 1,3% in the global paper industry generating 333 billion revenue. This demand allowed to reach a 11,9 billion of market revenue worldwide. The global pulp and paper market size is expected to increase to 86,700 million at a CAGR of 4,6% to the next decade. All these reasons are giving a rise in demand of non-wood pulp production as a fiber source for pulp.

The Paper and forest industry has grown at a slow rate. The European forest products industry has changed by globalization, this industry strongly competes with other materials and regions and the main European threats for this industry are the technical change and competitors with lower costs. However, the industry has many strengths as the closeness to the markets, access to capital, excellent infrastructure, and capacity to innovate.

Great investments in land, joint and infrastructure improvement are the main strategies used by competitors to generate growth. One of the major threats occurs when competitors are able to decrease its costs of production efficiently which drives all other companies into the same direction, resulting in very high competitive environment led by giant established players as UPM-Kymmene Corporation (UPM), Mondi Plc and Smurfit Kappa Group Plc, among others.

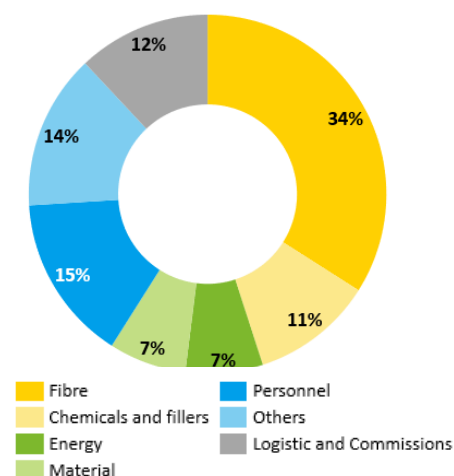
## Competitive Positioning

### ***Bargaining power of suppliers (Moderate-Low)***

This industry has a pool of global suppliers with strong relationships. Since wood is the most important cost (Figure 19). The main purpose is to have a high retention rate of supplier as they would face switching cost in an unstable bargaining situation. This might balance the position if sourcing condition get affected. STE has existing long-term harvesting rights and lease contract between many players. Nowadays, it is the second-biggest private forest owners in the world which allow competitive sourcing. The company control 50% of its use of wood supply which gives strength in any possible volatility in the wood market or relationship with suppliers.

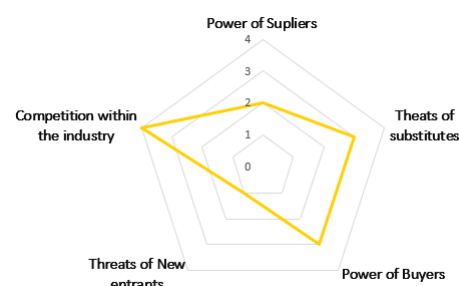
***Threat of substitutes (Moderate)*** Number of materials substitutes for this industry can be considered moderate high. Digitalization is starting to substitute printed media and books, this development in technology has decreased the demand for paper. However, the impact can be overcome by the constant pressure for manufactures to use more sustainable materials based in a circular economy. Additionally, the company is moving to more sustainable fossil-based products innovating in Biocomposites and becoming pioneers in the use of pulp for the textile industry. Thanks to the continuing investment in R&D for STE it is possible to create new products and solutions quickly to anticipate the demand. In 2019, over 7% of Stora Enso's sales came from new products.

**Figure 19:** Cost composition. (2019)



**Source:** Company data

**Figure 20:** Porter's Five Forces Analysis



**Source:** Author.

### ***Bargaining power of buyers (Moderate)***

Most companies concentrated in this industry are medium to large firms, by this it concludes a list of a well-known global group of buyers with high environmental policies and high standard regulations. Producers of pulp, paper and related products boast about having solid relationships with their customers, but demographic changes have increased the demand, which leads to higher discount expectations from the buyers' side. STE collaborate with stakeholder to provide a sustainable solution in programs aimed to understand customer needs. The company measures customer satisfaction with a Net Promoted Score which measures the customer's willingness to recommend STE's products and services to others. It scored 56% 2019 and 51% 2018.

### ***Threat of new entrants (Low)***

Paper and Forest industry participants benefit from a brand recognition build and maintain throughout time; high capital expenditures comprise the major component that hinder the possibility of competing as a new member To harvest and profit from this natural raw material companies must fulfil high environmental requirements to get the certifications, restricting the prospect for additional actors.

### ***Competition within industry (Significant)***

This industry can be considered as a highly competitive oligopoly. Since the companies cannot supply a unique or differentiated product a price war will naturally be established. Companies are forced to develop highly efficient processes to decrease the company's operations costs. The supply and demand over the years is in equilibrium. This industry is sensitive to price when there is overcapacity. In this competitive industry barriers to exit are high, which means that companies are willing to ask low prices to stay in the industry.

## **Investment Summary**

The recommendation for STE stands to HOLD, with a price target of €14.02sh for 2021YE, using a DCF method with an upside potential of +11.2%. The key value drivers of STE starts with a continuous innovation agenda, a competitive wood supply (cost efficiency), and strong liquidity which secures safe prospects with the ability to sustain a growing dividend policy thought strong cash-flows driven by the increasing profitability of the growing business. However, the current economic conditions attempt this consistent growth model. (Table 3).

### ***Innovation agenda boosting a growing business***

78% of Stora Enso's Operational EBIT in 2019 came from the growing business of packaging, wood materials and biomaterials. The paper division's expected structural decline boosts the company to start in 2006 the transformation from a traditional paper and board producer to a renewable material growth company. From

**Table 3:** Target price by method

Valuation	Target Price
DCF (FCFF)	€ 14,02
DCF (FCFE)	€ 14,71
Multiples	€ 14,47

**Source:** Author.

**Table 4:** DCF (FCFF) Enterprise Value. (Million EUR)

FCFF	2021F	2025F
EBIT (1-tax rate)	613	616
Non Cash Charges	651	878
CAPEX	602	702
Δ NWC	326	(18)
FCFF	-	773
EV	13.654	

**Source:** Author.

62% to 22% of the operational EBIT from 2006YE to 2019YE. In 2019 STE started transforming the Oulu paper Mill into a packaging material (Figure 21), reducing the paper capacity by 20%, balancing the market growth decline from 3-5% annually.

The paper production stopped by the end of September 2020 and the production on the converted machine will start by the end of the 2020. The forecast kraftliner pulp is expected to increase by 5.640 KT from 2020 to 2030. The sector is growing with a volume by year around 700.000 tones.

STE is, by all means, transforming its business from the traditional paper and forest to a packaging and biomaterials company, this change plus the unstable economic conditions allow the company to be ready to rapid changes but create uncertainty in how STE will create efficiency and gain market share in the new conditions when balancing the loss in the paper unit.

### ***Integrated Forestry management***

Wood is the most important raw material and the biggest share of group's total costs (34%). The company's long term strategy aims to secure raw material supply by being one of the largest private forest owners globally with forest assets valued at more than €4.9 Billion. STE manages land covering a total area of 2.35 Million hectares. The wood supply was strengthened after the Berkvik Stog acquisition in 2019, 1,4 million hectares of productive land. Total biological assets value is estimated in €3.6 billion 2019YE.

About 30% of the group's raw material needs are covered from own sources or long-term supply agreements. In 2019, STE harvested in own forests and sourced from long-term agreements 11 Million M3 in total. The deliveries to own mill were 37.1 M3 in total (Figure 22).

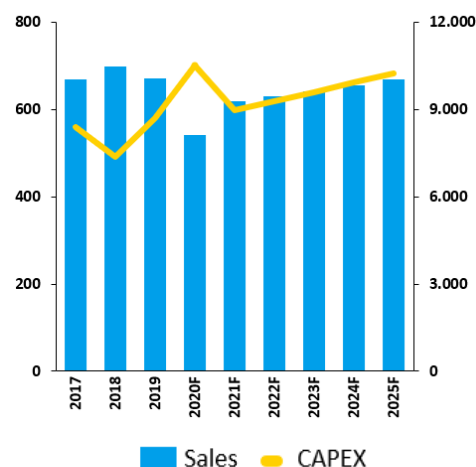
### ***Strong cash flow generation aim to maintain the capex at the target level***

An appropriate profit protection program was launched in 2019 due an increased uncertainty in the global economy. The target is to save €350 million continuous and €85 million one-time savings by the end of 2021. €105 million savings achieved by the end of 2019; the same level of savings is expected to be achieved by 2020. This saving allows funding the temporary increase in CAPEX expected from the Oulu mill transformation, the COVID-19 effect on revenues, and will finally add value for shareholders. This measurer allows the transformation of the company (CAPEX and the R&D).

### ***Valuation Methods***

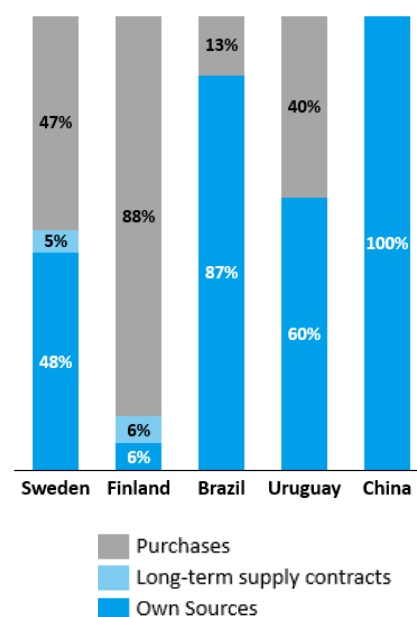
To compute STE's TP, the Discounted Cash Flow model (DCF) valuation with WACC method achieves a TP of €14.02/sh. As a complementary method it is used the Multiple valuation through

**Figure 21: Total CAPEX vs. Sales.**  
(Million EUR)



Source: Author.

**Figure 22: Supply of wood by country.**  
(2019)



Source: Company data. 2019.

EV/SALES, EV/EBITDA and EV/EBIT from EV Ratios and P/E AND P/SALES from price ratios reaching a TP of €14.47/sh with and upside potential of +11.5%, congruent with the DCF valuation. Finally, it is also applied the DCF valuation using the cost of equity (Re) and provide a TP of €14.47/sh with a +16,7% upside potential. Dividend discount model is evaluated and provides a TP of €12.6 with a downside potential of -4.34%. It is not relevant to the valuation.

## Valuation

### DCF Approach

To value Stora Enso, the DCF method is used based on FCFF, achieving a TP of €14.02/sh with an upside potential of 11.2%, The FCFF is based on pre-tax EBIT and adjusted for Net Debt and cash to arrive to the final equity value. It is considered a FCFF forecast for 2020-2025 period, afterwards a terminal period is assumed with an implicit constant growth rate for the perpetual period. This allows reaching the total value of the firm to investors (Table 5).

This valuation arrives to the Equity Value (EV) by discounting their respective Weighted Average Cost of Capital (WACC) subject to each forecasted year's annual variation considering the change in the capital structure. The DCF method is influenced by the assumptions inherent to the FCFF relate to forecasted revenues for each division, determining appropriate future EBITDA margins and defining the changes in NWC and CAPEX.

### Divisions

In the forecasted period, the revenues for the divisions were estimated as:

$$\text{Revenues per BD} = \text{Volume of division sold} * \text{Average Selling Price}$$

For 2020YE Consumer board it was assumed a decrease by 1% in volume due to a decline in the demand for COVID-19 but partly offset by higher prices in consumer board grades of 0,5% in the ASP. For the rest of the forecasted periods (2021-2025) in volume it is reflected a 0,1% decrease due to -1%/y decline in graphic paper consumption. Moreover, Packaging solutions accounts for the greatest decline of 19,45% in the revenues for 2020YE due to lower recycled containerboard and kraftliner prices and lower board deliveries in Europe due to COVID-19 (Figure 23). For the rest of the forecasted periods (2021-2025) it is assumed an expected increase in the YoY average, considering the plastic packaging substitution potential.

**Table 5:** Stora Enso Price Target

Price Target	
Enterprise Value	13.654
- Net Debt	(3.129)
- Current portion of non-current debt	(382)
+ Cash	910
Equity Value	11.053
No. Shares outstanding	789
Price Target	14,02
Share price - 30 Oct, 2030	12,6
Upside potential	11,2%

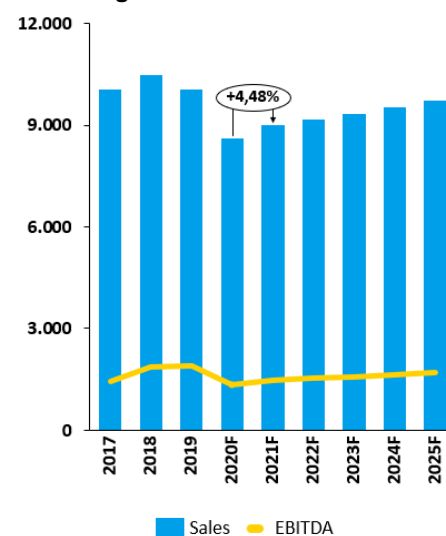
**Source:** Author.

**Table 6:** Relative Valuation

Price Target	
EV/SALES	€ 12,01
EV/EBITDA	€ 8,20
P/E	€ 20,05
P/SALES	€ 17,60
Average price multiple	€ 14,47
DCF	€ 14,02

**Source:** Thomson Reuters and Author

**Figure 23:** Sales vs EBITDA



**Source:** Author



The Biomaterials division's uncertainty for 2020YE results in a 26.1% sales decline driven by lower pulp prices and lower demand in graphical paper end uses. The division (2021-2025) offers a wide variety of pulp boost its sales to +8.07% CAGR 2021F-25F. COVID-19 negatively impacted STE's Wood division in 2020YE and lower classic sawn prices with 14.83% sales decrease, for the upcoming forecasted years a positive uptrend in sales by 0.92% it is expected attributable to increasing consumer preferences to wooden construction material in Europe. The recent Forest division is also affected in 2020 by COVID-19 accounting a 13.90% sales decrease, a recovery in revenues of 5% is expected in the remaining forecasted years.

The COVID-19 pandemic accelerated structural demand decline and placed pressure in deliveries and prices in all paper grades of the paper division, the decline in sales 2020YE is expected to be 37%. The upcoming forecasted years will decline at the same pace as the YoY trend (6,4%).

### COGS

The costs are assumed to remain stable in the projected years, the integrated forest management allows this supply security for STE. Expected volatility in wood prices is expected but a flexible exposure to market conditions is exhibited when it comes to negotiating external purchases or using internal wood.

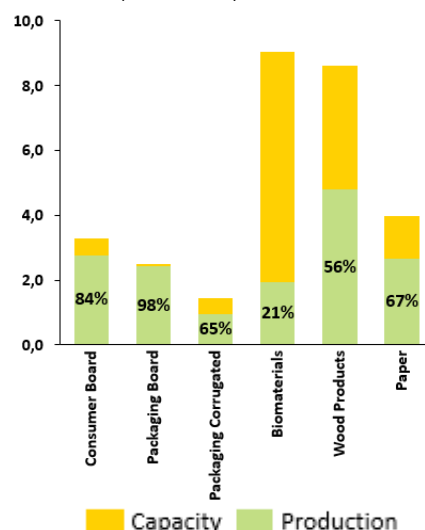
### CAPEX, Depreciation and Amortization

CAPEX allocation in STE is based on capital returns, it is assumed that the company is applying the same maintenance CAPEX in order to preserve the overall capacity of the Mills. The plants are operating on average at 65% capacity, it is expected and increase to 67% capacity by 2015YE (Figure 24). STE Oulu Mill is being transformed from Coated fine paper (CFP) into Kraftliner pulp for packaging final uses, this investment will account for EUR 79 million 2020YE in CAPEX, however with the profit protection program and the savings achieved the CAPEX is estimated to stay on the average level of EUR 680 million for all the projected years. Depreciation and Amortization (D&A) are expected to have the YoY average align with the company's growth.

### WACC Assumptions

**Cost of Equity:** The CAPM model is used, it is assumed a **Cost of Equity** that ranges on average 6.8% in the forecasted years. It is assumed an **RFR** of 1.1% from the survey of the professor Pablo Fernandez, it is taken the RFR of Finland since the company is based in Helsinki and the largest shareholder is Solidium Oy, entirely owned by the Finish state. It is added to the model an **MRP** of 5.73% calculated by the weighted **MRP** by country sales of STE, which also correspond to Germany's **MRP** an important receptor of the company's sales. The **Beta** of 0.84 is calculated through a pure-play method from peers' average betas.

**Figure 24: Capacity vs. Production**  
2025YE. (Million M3)



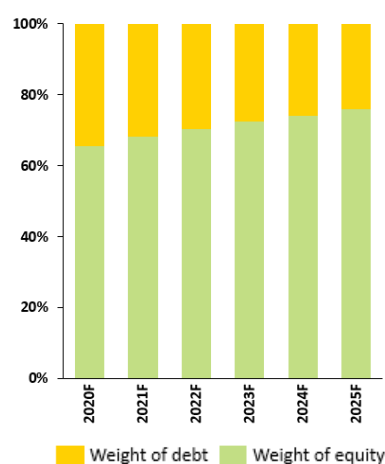
Source: Author

**Table 7: Stora Enso's WACC**

WACC	2019F	Terminal
<b>Cost of Equity</b>		
Risk Free Rate (RFR)	1,10%	1,10%
Country Risk Premium (CRP)	0,69%	0,69%
Beta (β)	0,89	0,84
Market Risk Premium (MRP)	5,73%	5,73%
<b>Re</b>	<b>6,79%</b>	<b>6,48%</b>
<b>Cost of Debt</b>		
Risk Free Rate (RFR)	1,10%	1,10%
Spread	2,81%	2,81%
Marginal Tax rate	24,70%	24,70%
<b>Rd</b>	<b>2,95%</b>	<b>2,95%</b>
Weight of equity	67%	76%
Weight of debt	33%	24%
<b>WACC</b>	<b>5,51%</b>	<b>5,63%</b>

Source: Author

**Figure 25. Capital Structure.**



Source: Author.

A **Cost of Debt** at 3.91% is assumed. STE is exposed to Euribor and Stibor in long term loans. This Rd is calculated by weighting the fixed rate and floating rate of the total loans reaching a SPREAD of 2.81% and adding the RFR of 1.1%. The company's historical effective corporate **tax rate** of 24.7% is used to include in the model. Considering the stable market capital structure around 36% D/EV, WACC is expected to range on average 5.57% for the projected years.

### Terminal Value (TV)

For the TV in 2025, it is calculated a perpetuity assuming CAPEX as the same D&A. STE is operating at a reasonable capacity and it is not considering expanding in large scale. Consequently, it is projected a perpetuity growth of 1.2% linked to the model. As a discount factor, it is used the WACC.

### Peer's Selection

To identify the most appropriate peers for STE it is considered each firm's market value, Enterprise value and profitability measures as sales and EBITDA. Based on these criteria the final selection includes 3 comparable companies: UPM, Smurfit Kappa Group PLC and Mondi PLC (Table 8).

### Relative Valuation Approach

In order to compare STE with peers it is applied the Multiples Valuation, in this regard the EV/SALES, EV/EBITDA, P/E and P/SALES ratios were used in the analysis. According to this valuation the company appears undervalued based on EV/SALES (1.10x), EV/EBITDA (7.18x), P/E (11.95x) and P/SALES (1.02x) multiples. These multiples are at a discount when compared with peers averages 1.36x, 6.91x, 14.74x and 1.38x respectively (Figure 26).

In order to reach a TP from the peer's valuation, it is average the TP from different multiples resulting in a more accurate relative valuation. The set of multiples averages result in a TP of €14.47/sh, while the DCF TP is €14.02/sh. Both models denote that STE current price €12.60/sh is undervalued. Multiples of STE are lower, indicating that the company is undervalued relatively to the peers selected.

## Financial Analysis

### Strong Cash Flow Generation

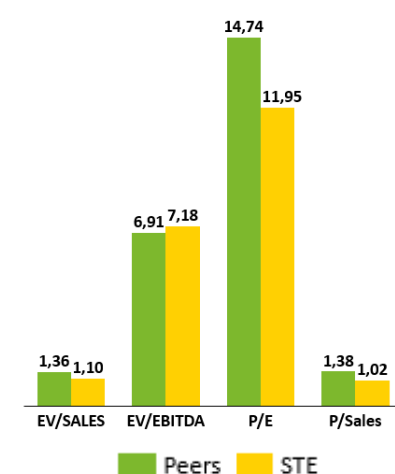
STE is a mature company with a healthy cash flow generation and a stable working capital structure. FCFF will range between €1.144 million and €859 million from 2020YE to 2025YE. The normalization of outflows from operation activities Post-Covid-19 will increase dividends by 8.65% YoY from 2019YE – 2025YE. The profit protection program created to face uncertainties is trimming the

**Table 8:** Peer's Selection

Company	Sales	Enterprise Value	EBITDA	Peer
UPM	✓	✓	✓	✓
Mondi PLC	✓	✓	✓	✓
Smurfit Kappa	✓	✓	✓	✓
Metsa Board	✗	✗	✗	✗
Svenska Cellulosa	✗	✓	✗	✗

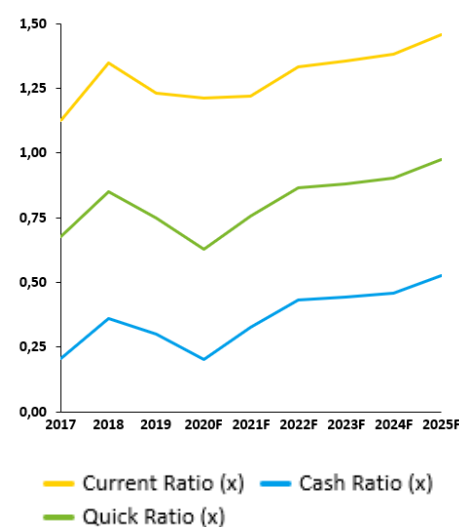
**Source:** Author

**Figure 26:** Stora Enso vs. Peer's multiples



**Source:** Thomson Reuters & Author

**Figure 27:** Stora Enso Liquidity ratio



**Source:** Author

WCR to hold investments and maintain a safe level of cash. This healthy cash allows funding in CAPEX to cover the increasing demand in the packaging sector. Despite an increase in inventories and receivables, the current ratio is dragged upward with an increase in cash from 1.23 in 2019YE to 2.00 in 2025YE and a quick ratio following the same trend from 0.75 to 1.51 2019YE to 2025YE respectively (Figure 27).

### Stable Operation Efficiency

An overall operating cycle of 133,57 days and a similar level to the forecasted years demonstrate the stability expected to see in a mature company (Figure 28). An average Total Assets Turnover of 0,78 between 2017 and 2019 indicate that STE is as efficient as its peers TABLA RATIOS in this intensive capital industry. Stora Enso's average receivable turnover of 7,79 in 2017 -2019 outperformed its peers. The collection period was on average 47 days between 2017 and 2019, with a similar trend that will continue in the next years (48.8 days by 2025YE)

### Profitability

As a result of the decrease in sales by 2020YE due to Covid-19 impacts, STE is suffering a downward trend from 2019YE to 2025YE on returns in its equity (5% to 7%), and assets (2% to 4%). Dim enhanced operating performance in 2020 is offset by the recovery in revenues in the packaging, biomaterials, and paper division from 2021 to 2015. Lower ROE and ROA ratios compensated by a more active dividend policy from 2020 to 2025. EBITDA margins are stable, reflecting stability in the raw material prices given the competitive integrated wood supply, 34% of the cost composition of 2019YE.

### Dividend Payment

STE has maintained on average a distribution dividend/share of €0.40 for the last 10 years. According to the annual reports STE has not maintained a relatively stable payout policy throughout the same period. In the AGM of 2020, the BOD proposed reduce the dividend payment per share to €0.15 due to Covid-19 leading to profit from earning expectations in terms of stock dividends. The dividend payout ratio is not projected to pay a constant growth but maintains the traditional constant payment per share of €0.43 for the forecasted years (Figure 29).

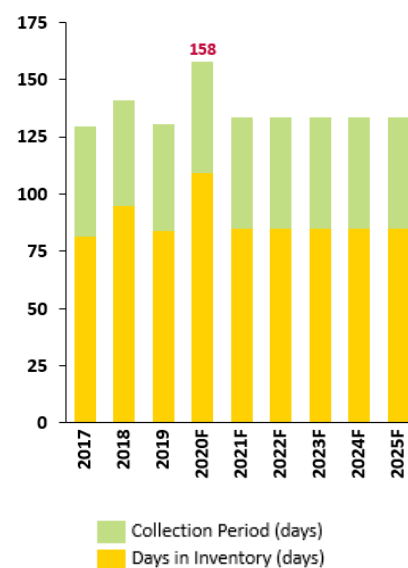
## Investment Risks

### Economic and Market Risks

#### Interest Rate Risk (EMR1)

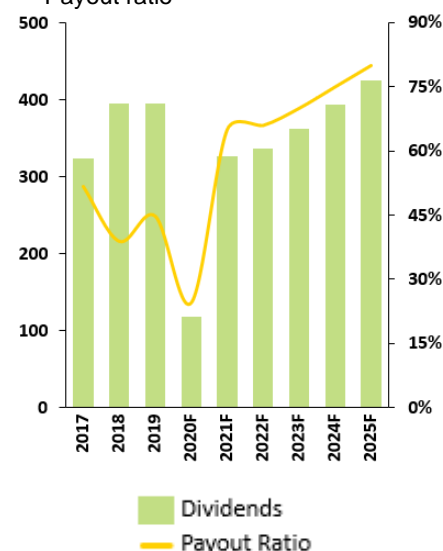
STE debt is indexed in Euribor and Stribor, an increase in the interest rates will affect the interest expense of the group and value of its assets and liabilities (Figure 31). STE is exposed to this risk through its loans and commercial agreements of biological assets. By the end of 2019, one percentage parallel change up or down in the interest rate would impact annual interest expenses by €5

Figure 28: Stora Enso Operating cycle



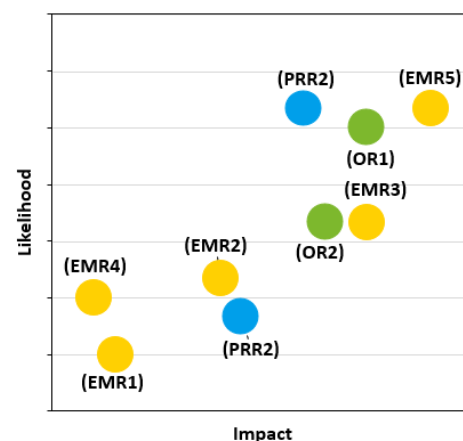
Source: Author

Figure 29: Stora Enso Dividend vs. Payout ratio



Source: Author

Figure 30: Stora Enso Risk Matrix



Source: Author



million, assuming a duration and a funding structure of the group remaining constant. In order to decrease the effect of this risk, STE is using swap contracts to cover the floating-rate risk loans into fixed-rate risk loans.

### Foreign Exchange risk (EMR2)

Sales in non-euro currencies 2019YE accounted for 44,4% of total sales. Main of this sale comes in Swedish crowns from Sweden (29,7%), the remaining is scattered in Yuan (4,8%), US dollars (4,3%), Brazilian real (3%), Czech Koruna (2,4%) and British pounds (0,2%) (Figure 32). The overall exchange effect was €6 million in 2019.

A decrease in the exchange rates would have an approximately equal opposite effect. Conversely, a positive amount reflects a potential net gain. STE uses forwards and options to hedge the foreign exchange risk. Group's standard policy to mitigate the risk is to hedge 45% - 55% of the highly probable forecast cash flows in major currencies for the next 12 months by using derivatives instruments.

### Commodity Price Risk (EMR3)

STE is exposed to commodity and energy price volatility that have an impact on group's profitability. A 10% movement in energy and raw material prices would result in €9 million 2019YE. Currently, STE applies oil and coal risk component hedging for natural gas purchases and as an effort to mitigate other commodity prices risk exposures to wood fiber price risk the STE is a significant owner of forest assets in the Nordic region The Group manages energy price risk by entering into long-term physical fixed price purchase agreements and by holding 15.6% in Pohjolan Voima Oy, a privately owned group in the energy sector in Finland.

### China Demand (EMR4)

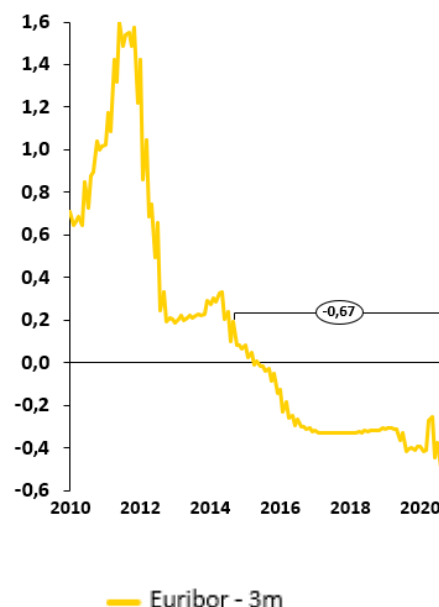
China accounts by nearly 5% of total sales 2019YE, a possible slowdown in consumption might impact STE's earning which directly affect profitability and efficiency. China's GDP reveal a deceleration in growth from 2015 onwards (Figure 33).

### COVID-19 Risk (EMR5)

Uncertainties related to Covid-19 impacts on the global economy continue to prevail on Stora Enso's business environment. The renewed increased in Covid-19 infection particularly in Europe will have an impact on the economic conditions. Nationalist ant-globalist policies' trend may increase following the Covid-19 pandemic with borders checks on goods and national interest promotion. Various investment subsidies granted to STE brought investment commitments in different countries (Finland, Sweden, and China). If conditions are not met, local officials may pursue administrative claims that could negatively impact the economy.

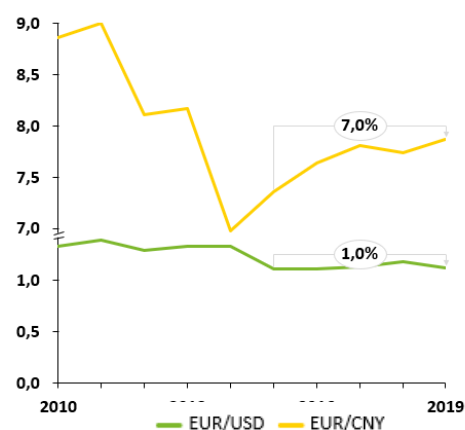
STE maintain a Covid-19 risk assessment process to determine the potential short- medium- and long-term implications.

Figure 31: Euribor 3m



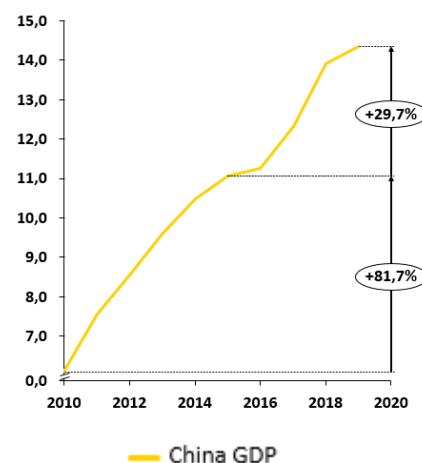
Source: ECB

Figure 32: EUR/USD vs. EUR/CNY



Source: ECB

Figure 33: China GDP Growth



Source: World Bank

## Operational Risks

### Global Warming Risk (OR1)

The unpredictable changes in precipitation patterns (Figure 34), periods of drought, typhoons and severe frost periods could cause damage to operations and tree plantations. Increase in average temperatures could lead to changes in the tree species composition of forest, forest fires and insect outbreaks, potentially affecting forest and regional wood prices. Milder winters will impact harvesting, transport, and related costs in the northern region. STE benefits from its R&D program applied to increase tolerance of extreme temperatures and its diversity of forest types that enforces diversification in wood sourcing. Reliance on outside suppliers for natural gas, oil and coal leaves the group susceptible to change in energy market prices that could disturb the supply chain. As a potential global warming acute availability of storage water may in the long-term impact the group's operations.

### Sourcing Risk (OR2)

Securing access to reliable low-cost supplies and proactively managing cost may adversely affect Stora Enso's profitability. The most important products are fiber, chemicals, and energy. In addition, the most important services are transport and other business support services. For some of these inputs the limited number of suppliers is a risk. STE manage a wide range of suppliers and monitors them to mitigate situations that might jeopardize continued production.

## Political and Regulatory Risks

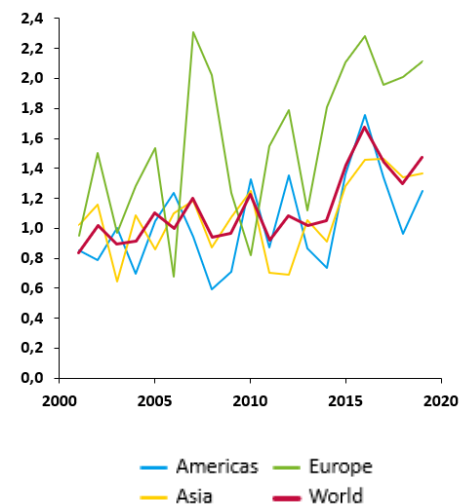
### Carbon Emission Policy Risk (PRR1)

Higher costs and CAPEX to meet new environmental requirements for the forest industry present a potential risk in any country in which STE operates. EU energy and carbon policies may impact the availability and price of wood fiber. General opinion and political consensus to limit wood harvesting to preserve and store carbon while ignoring the net positive effect on climates impact of forest products could limit the availability of wood and increase the costs. An important mitigation measure STE actively participate in policy development mainly through industry associations and other partnership programs. Regulatory changes involve market growth potential for sustainable products which is a source of competitive advantage.

### Land-use Risk (PRR2)

Correct management land use to meet the stakeholders' expectations might result in financial and reputational loss to Stora Enso. Moreover, global demand for land with agricultural purposes due to population growth claim a more efficient use of natural resources. Sustainable management of forest and plantations allowed ecosystem more resilient to adverse climate change impacts.

**Figure 34:** Temperature Change by Region (°C)



Source: FAO

**Table 9:** Monte Carlo simulation

Monte Carlo Simulation	
Number of trials	100.000
Base Case	14,02
Mean	14,33
Standard Deviation	11,78
10th Percentile	(0,33)
90th Percentile	29,33
Upside potential	13,7%

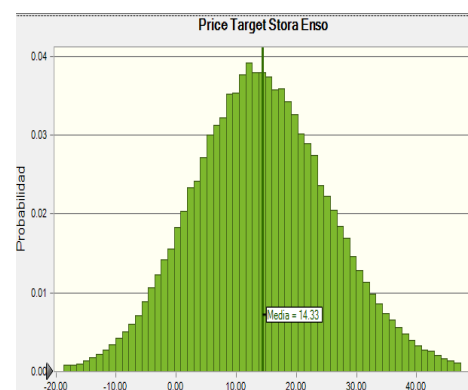
Source: Author

### Risk to Price Target

It is performed a sensitivity analysis to assess the impact of the main investment risk on STE's price target. The risk evaluated is involved in the valuation model. The sensitivity analysis applied is Monte Carlo Simulation to the DCF valuation using Cristal Ball which covered 100,000 simulations

It is assumed different distributions to the inputs evaluated which are risks are the growth rate (1,2%), WACC (5,6%), tax rate (24,7%), Wood consumption (34%) and the % COSG (60,3%). The result shows a mean price of €14.33 and a standard deviation of 11,78, and a 95% probability (Table 9). The mean TP computed by the Monte Carlo simulation is similar to €14.02/sh, the TP computed on the DCF model. The mean provides a certainty of 22,8% to the **BUY** recommendation (Figure 35).

Figure 35: Monte Carlo distribution



Source: Author

As complementary test performs the sensitivity analysis with three of the most important variables to the target price. It is analyzed the possible change in % of COGS and the WACC. The average price in the simulation is €14,05, very close to the DCF of €14,02.

The recommendation stands for a HOLD position and can be perceived in the tables below.

	<b>Sell</b> < 0%
	0% ≤ <b>Reduce</b> < 10%
	10% ≤ <b>Hold</b> < 20%
	20% ≤ <b>Buy</b> < 45%
	<b>Strong Buy</b> ≥ 45%

Figure 36: Sensitivity Analysis to % COGS and WACC

	Price Target	WACC						
	14,02	5,3%	5,4%	5,5%	5,6%	5,7%	5,8%	5,9%
% COGS	60,0%	15,83	15,39	14,97	14,57	14,19	13,82	13,47
	60,1%	15,63	15,19	14,78	14,39	14,01	13,65	13,30
	60,2%	15,43	15,00	14,59	14,20	13,83	13,47	13,13
	60,3%	15,23	14,81	14,40	14,02	13,65	13,30	12,96
	60,4%	15,03	14,61	14,21	13,83	13,47	13,12	12,79
	60,5%	14,83	14,42	14,02	13,65	13,29	12,94	12,62
	60,6%	14,63	14,22	13,83	13,46	13,11	12,77	12,44

Source: Author

In addition, it is analyzed the sensitivity to changes in the growth rate, the average price is €14,08.

Figure 37: Sensitivity Analysis to Growth rate and WACC

	Price Target	WACC						
	14,02	5,3%	5,4%	5,5%	5,6%	5,7%	5,8%	5,9%
Growth Rate	0,9%	14,13	13,76	13,41	13,07	12,74	12,43	12,13
	1,0%	14,48	14,09	13,72	13,37	13,03	12,71	12,40
	1,1%	14,85	14,44	14,05	13,69	13,33	13,00	12,67
	1,2%	15,23	14,80	14,40	14,02	13,65	13,30	12,96
	1,3%	15,63	15,19	14,76	14,36	13,98	13,61	13,26
	1,4%	16,05	15,59	15,14	14,72	14,32	13,94	13,57
	1,5%	16,50	16,01	15,54	15,10	14,68	14,28	13,90

Source: Author

# Appendices

## Appendix 1: Statement of Financial Position

BALANCE SHEET (EUR Million)	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast
Goodwill	237	243	302	302	302	302	302	302	302
Other intangible assets	229	254	169	171	170	169	167	165	162
Property, plant, and equipment	5.310	5.234	6.118	6.223	6.180	6.115	6.023	5.903	5.752
Biological assets	460	483	3.664	3.677	3.672	3.662	3.649	3.632	3.611
Equity accounted investments	1.994	2.218	1.093	1.021	953	890	831	776	725
Other non-current assets	204	168	118	118	118	118	118	118	118
<b>Non-current assets</b>	<b>8.434</b>	<b>8.600</b>	<b>11.464</b>	<b>11.512</b>	<b>11.395</b>	<b>11.256</b>	<b>11.091</b>	<b>10.897</b>	<b>10.670</b>
Inventories	1.321	1.567	1.392	1.582	1.284	1.308	1.334	1.363	1.394
Tax receivables	9	9	11	12	13	15	16	18	20
Operative receivables	1.319	1.487	1.289	1.152	1.204	1.225	1.249	1.275	1.302
Interest-bearing receivables	80	55	23	12	7	4	2	1	1
Cash and cash equivalents	607	1.130	876	553	910	1.218	1.264	1.327	1.541
<b>Current assets</b>	<b>3.336</b>	<b>4.248</b>	<b>3.591</b>	<b>3.312</b>	<b>3.418</b>	<b>3.770</b>	<b>3.866</b>	<b>3.983</b>	<b>4.258</b>
<b>Total Assets</b>	<b>11.770</b>	<b>12.848</b>	<b>15.055</b>	<b>14.823</b>	<b>14.813</b>	<b>15.026</b>	<b>14.957</b>	<b>14.880</b>	<b>14.928</b>
Share capital	1.342	1.342	1.342	1.342	1.342	1.342	1.342	1.342	1.342
Share premium	77	77	77	77	77	77	77	77	77
Fair value reserve	210	290	397	397	397	397	397	397	397
Cumulative translation adjustment	(288)	(335)	(136)	(136)	(136)	(136)	(136)	(136)	(136)
Invested non-restricted equity fund	633	633	633	633	633	633	633	633	633
Retained earnings	3.409	3.694	4.236	4.991	5.146	5.312	5.460	5.584	5.683
<i>Net profit for the year</i>	<i>625</i>	<i>1.013</i>	<i>880</i>	<i>482</i>	<i>503</i>	<i>510</i>	<i>517</i>	<i>524</i>	<i>531</i>
<b>Total Equity</b>	<b>6.055</b>	<b>6.732</b>	<b>7.422</b>	<b>7.786</b>	<b>7.962</b>	<b>8.135</b>	<b>8.290</b>	<b>8.421</b>	<b>8.527</b>
Provisions	488	502	568	568	568	568	568	568	568
Deferred tax liabilities	166	168	875	875	875	875	875	875	875
Non-current interest-bearing liabilities	2.046	2.265	3.232	2.821	2.567	2.582	2.330	2.091	1.998
Other non-current operative liabilities	52	34	40	40	40	40	40	40	40
<b>Non-current liabilities</b>	<b>2.752</b>	<b>2.969</b>	<b>4.715</b>	<b>4.304</b>	<b>4.050</b>	<b>4.065</b>	<b>3.813</b>	<b>3.574</b>	<b>3.481</b>
Current portion of non-current debt	370	403	376	379	382	385	388	391	395
Interest-bearing liabilities	596	675	572	560	549	538	527	516	506
Bank overdrafts	4	1	13	13	13	13	13	13	13
Other provisions	23	16	55	55	55	55	55	55	55
Other operative liabilities	1.888	1.960	1.854	1.678	1.754	1.787	1.823	1.862	1.904
Tax liabilities	82	92	48	48	48	48	48	48	48
<b>Current Liabilities</b>	<b>2.963</b>	<b>3.147</b>	<b>2.918</b>	<b>2.733</b>	<b>2.801</b>	<b>2.826</b>	<b>2.854</b>	<b>2.885</b>	<b>2.920</b>
<b>Total Liabilities</b>	<b>5.715</b>	<b>6.116</b>	<b>7.633</b>	<b>7.038</b>	<b>6.851</b>	<b>6.891</b>	<b>6.667</b>	<b>6.459</b>	<b>6.401</b>
<b>Total Equity and Liabilities</b>	<b>11.770</b>	<b>12.848</b>	<b>15.055</b>	<b>14.823</b>	<b>14.813</b>	<b>15.026</b>	<b>14.957</b>	<b>14.880</b>	<b>14.928</b>

**Source:** Company data and author

## Appendix 2 Common-Size Statement of Financial Position

BALANCE SHEET (EUR Million)	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast
Goodwill	2,0%	1,9%	2,0%	2,0%	2,0%	2,0%	2,0%	2,0%	2,0%
Other intangible assets	1,9%	2,0%	1,1%	1,2%	1,1%	1,1%	1,1%	1,1%	1,1%
Property, plant and equipment	45,1%	40,7%	40,6%	42,0%	41,7%	40,7%	40,3%	39,7%	38,5%
Biological assets	3,9%	3,8%	24,3%	24,8%	24,8%	24,4%	24,4%	24,4%	24,2%
Equity accounted investments	16,9%	17,3%	7,3%	6,9%	6,4%	5,9%	5,6%	5,2%	4,9%
Other non-current assets	1,7%	1,3%	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%
<b>Non-current assets</b>	<b>71,7%</b>	<b>66,9%</b>	<b>76,1%</b>	<b>77,7%</b>	<b>76,9%</b>	<b>74,9%</b>	<b>74,2%</b>	<b>73,2%</b>	<b>71,5%</b>
Inventories	11,2%	12,2%	9,2%	10,7%	8,7%	8,7%	8,9%	9,2%	9,3%
Tax receivables	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%
Operative receivables	11,2%	11,6%	8,6%	7,8%	8,1%	8,2%	8,4%	8,6%	8,7%
Interest-bearing receivables	0,7%	0,4%	0,2%	0,1%	0,0%	0,0%	0,0%	0,0%	0,0%
Cash and cash equivalents	5,2%	8,8%	5,8%	3,7%	6,1%	8,1%	8,5%	8,9%	10,3%
<b>Current assets</b>	<b>28,3%</b>	<b>33,1%</b>	<b>23,9%</b>	<b>22,3%</b>	<b>23,1%</b>	<b>25,1%</b>	<b>25,8%</b>	<b>26,8%</b>	<b>28,5%</b>
<b>Total Assets</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>
Share capital	11,4%	10,4%	8,9%	9,1%	9,1%	8,9%	9,0%	9,0%	9,0%
Share premium	0,7%	0,6%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%
Fair value reserve	1,8%	2,3%	2,6%	2,7%	2,7%	2,6%	2,7%	2,7%	2,7%
Cumulative translation adjustment	-2,4%	-2,6%	-0,9%	-0,9%	-0,9%	-0,9%	-0,9%	-0,9%	-0,9%
Invested non-restricted equity fund	5,4%	4,9%	4,2%	4,3%	4,3%	4,2%	4,2%	4,3%	4,2%
Retained earnings	29,0%	28,8%	28,1%	33,7%	34,7%	35,4%	36,5%	37,5%	38,1%
<i>Net profit for the year</i>	<i>5,3%</i>	<i>7,9%</i>	<i>5,8%</i>	<i>3,3%</i>	<i>3,4%</i>	<i>3,4%</i>	<i>3,5%</i>	<i>3,5%</i>	<i>3,6%</i>
<b>Total Equity</b>	<b>51,4%</b>	<b>52,4%</b>	<b>49,3%</b>	<b>52,5%</b>	<b>53,7%</b>	<b>54,1%</b>	<b>55,4%</b>	<b>56,6%</b>	<b>57,1%</b>
Provisions	4,1%	3,9%	3,8%	3,8%	3,8%	3,8%	3,8%	3,8%	3,8%
Deferred tax liabilities	1,4%	1,3%	5,8%	5,9%	5,9%	5,8%	5,9%	5,9%	5,9%
Non-current interest-bearing liabilities	17,4%	17,6%	21,5%	19,0%	17,3%	17,2%	15,6%	14,1%	13,4%
Other non-current operative liabilities	0,4%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%
<b>Non-current liabilities</b>	<b>23,4%</b>	<b>23,1%</b>	<b>31,3%</b>	<b>29,0%</b>	<b>27,3%</b>	<b>27,1%</b>	<b>25,5%</b>	<b>24,0%</b>	<b>23,3%</b>
Current portion of non-current debt	3,1%	3,1%	2,5%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%
Interest-bearing liabilities	5,1%	5,3%	3,8%	3,8%	3,7%	3,6%	3,5%	3,5%	3,4%
Bank overdrafts	0,0%	0,0%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%
Other provisions	0,2%	0,1%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%	0,4%
Other operative liabilities	16,0%	15,3%	12,3%	11,3%	11,8%	11,9%	12,2%	12,5%	12,8%
Tax liabilities	0,7%	0,7%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%
<b>Current Liabilities</b>	<b>25,2%</b>	<b>24,5%</b>	<b>19,4%</b>	<b>18,4%</b>	<b>18,9%</b>	<b>18,8%</b>	<b>19,1%</b>	<b>19,4%</b>	<b>19,6%</b>
<b>Total Liabilities</b>	<b>48,6%</b>	<b>47,6%</b>	<b>50,7%</b>	<b>47,5%</b>	<b>46,3%</b>	<b>45,9%</b>	<b>44,6%</b>	<b>43,4%</b>	<b>42,9%</b>
<b>Total Equity and Liabilities</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>

**Source:** Company data and author

### Appendix 3: Income Statement

INCOME STATEMENT (EUR Million)	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast
Total Sales	10.045	10.486	10.055	8.612	8.998	9.160	9.337	9.528	9.736
Other operating income	147	92	165	175	185	196	208	220	233
COGS - Materials and Services	(5.917)	(6.032)	(6.066)	(5.301)	(5.540)	(5.645)	(5.758)	(5.881)	(6.014)
<b>Gross Profit</b>	<b>4.275</b>	<b>4.546</b>	<b>4.154</b>	<b>3.486</b>	<b>3.643</b>	<b>3.712</b>	<b>3.786</b>	<b>3.867</b>	<b>3.955</b>
<i>Gross Profit Margin</i>	<i>42%</i>	<i>43%</i>	<i>41%</i>	<i>40%</i>	<i>40%</i>	<i>40%</i>	<i>40%</i>	<i>40%</i>	<i>40%</i>
Transportation costs	(968)	(932)	(904)	(790)	(826)	(841)	(858)	(876)	(896)
Personnel expenses	(1.331)	(1.330)	(1.331)	(1.331)	(1.331)	(1.331)	(1.331)	(1.331)	(1.331)
Other operating expenses	(557)	(415)	(17)	(19)	(21)	(24)	(26)	(29)	(33)
<b>Operational EBITDA</b>	<b>1.419</b>	<b>1.869</b>	<b>1.902</b>	<b>1.346</b>	<b>1.465</b>	<b>1.516</b>	<b>1.571</b>	<b>1.631</b>	<b>1.695</b>
D&A	(515)	(479)	(597)	(604)	(651)	(701)	(756)	(814)	(878)
<b>Operating Profit</b>	<b>904</b>	<b>1.390</b>	<b>1.305</b>	<b>742</b>	<b>815</b>	<b>815</b>	<b>815</b>	<b>816</b>	<b>817</b>
Financial income	38	27	8	63	8	8	8	8	8
Financial expense	(200)	(207)	(176)	(165)	(155)	(145)	(136)	(128)	(120)
<b>Profit before Tax</b>	<b>742</b>	<b>1.210</b>	<b>1.137</b>	<b>640</b>	<b>668</b>	<b>677</b>	<b>687</b>	<b>696</b>	<b>705</b>
Income tax	(128)	(221)	(281)	(158)	(165)	(167)	(170)	(172)	(174)
<b>Net profit</b>	<b>614</b>	<b>989</b>	<b>856</b>	<b>482</b>	<b>503</b>	<b>510</b>	<b>517</b>	<b>524</b>	<b>531</b>

*Source: Company data and author*

### Appendix 4: Common-Size Income Statement

INCOME STATEMENT (EUR Million)	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast
Total Sales	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%
Other operating income	1,5%	0,9%	1,6%	2,0%	2,1%	2,1%	2,2%	2,3%	2,4%
COGS - Materials and Services	-58,9%	-57,5%	-60,3%	-61,6%	-61,6%	-61,6%	-61,7%	-61,7%	-61,8%
<b>Gross Profit</b>	<b>42,6%</b>	<b>43,4%</b>	<b>41,3%</b>	<b>40,5%</b>	<b>40,5%</b>	<b>40,5%</b>	<b>40,6%</b>	<b>40,6%</b>	<b>40,6%</b>
<i>Gross Profit Margin</i>	<i>0,0%</i>	<i>0,0%</i>	<i>0,0%</i>	<i>0,0%</i>	<i>0,0%</i>	<i>0,0%</i>	<i>0,0%</i>	<i>0,0%</i>	<i>0,0%</i>
Transportation costs	-9,6%	-8,9%	-9,0%	-9,2%	-9,2%	-9,2%	-9,2%	-9,2%	-9,2%
Personnel expenses	-13,3%	-12,7%	-13,2%	-15,5%	-14,8%	-14,5%	-14,3%	-14,0%	-13,7%
Other operating expenses	-5,5%	-4,0%	-0,2%	-0,2%	-0,2%	-0,3%	-0,3%	-0,3%	-0,3%
<b>Operational EBITDA</b>	<b>14,1%</b>	<b>17,8%</b>	<b>18,9%</b>	<b>15,6%</b>	<b>16,3%</b>	<b>16,6%</b>	<b>16,8%</b>	<b>17,1%</b>	<b>17,4%</b>
D&A	-5,1%	-4,6%	-5,9%	-7,0%	-7,2%	-7,7%	-8,1%	-8,5%	-9,0%
<b>Operating Profit</b>	<b>9,0%</b>	<b>13,3%</b>	<b>13,0%</b>	<b>8,6%</b>	<b>9,1%</b>	<b>8,9%</b>	<b>8,7%</b>	<b>8,6%</b>	<b>8,4%</b>
Financial income	0,4%	0,3%	0,1%	0,7%	0,1%	0,1%	0,1%	0,1%	0,1%
Financial expense	-2,0%	-2,0%	-1,8%	-1,9%	-1,7%	-1,6%	-1,5%	-1,3%	-1,2%
<b>Profit before Tax</b>	<b>7,4%</b>	<b>11,5%</b>	<b>11,3%</b>	<b>7,4%</b>	<b>7,4%</b>	<b>7,4%</b>	<b>7,4%</b>	<b>7,3%</b>	<b>7,2%</b>
Income tax	-1,3%	-2,1%	-2,8%	-1,8%	-1,8%	-1,8%	-1,8%	-1,8%	-1,8%
<b>Net profit</b>	<b>6,1%</b>	<b>9,4%</b>	<b>8,5%</b>	<b>5,6%</b>	<b>5,6%</b>	<b>5,6%</b>	<b>5,5%</b>	<b>5,5%</b>	<b>5,5%</b>

*Source: Company data and author*



## Appendix 5: Cash Flow Statement

CASH FLOW (EUR Million)	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast
Net income	482	503	510	517	524	531
Depreciation for PP&E	528	569	613	661	712	767
Amortization for Other intangible assets	9	9	10	11	12	13
Amortization for Biological Assets	67	72	78	84	91	98
Inventories	(190)	298	(24)	(26)	(29)	(31)
Tax receivables	(1)	(1)	(1)	(2)	(2)	(2)
Operative receivables	137	(52)	(22)	(24)	(26)	(28)
Interest-bearing receivables	11	6	3	2	1	0
Other operative liabilities	(176)	76	33	36	39	42
<b>OPERATING ACTIVITIES</b>	<b>867</b>	<b>1.480</b>	<b>1.200</b>	<b>1.259</b>	<b>1.323</b>	<b>1.391</b>
CAPEX for Property plant and equipment	(633)	(527)	(548)	(569)	(592)	(616)
CAPEX for Other intangible Assets	(10)	(9)	(9)	(9)	(9)	(10)
CAPEX for Biological Assets	(81)	(67)	(69)	(71)	(74)	(76)
Equity accounted investments	72	67	63	59	55	51
<b>INVESTING ACTIVITIES</b>	<b>(652)</b>	<b>(534)</b>	<b>(562)</b>	<b>(591)</b>	<b>(620)</b>	<b>(650)</b>
Dividends paid	(118)	(327)	(337)	(362)	(393)	(425)
Non-current interest-bearing liabilities	(411)	(254)	15	(252)	(239)	(93)
Current portion of non-current debt	3	3	3	3	3	3
Interest-bearing liabilities	(12)	(11)	(11)	(11)	(11)	(10)
<b>FINANCING ACTIVITIES</b>	<b>(538)</b>	<b>(589)</b>	<b>(330)</b>	<b>(622)</b>	<b>(640)</b>	<b>(526)</b>
Change in cash and cash equivalents	(323)	357	308	46	63	215
Beginning cash	876	553	910	1.218	1.264	1.327
<b>ENDING CASH</b>	<b>553</b>	<b>910</b>	<b>1.218</b>	<b>1.264</b>	<b>1.327</b>	<b>1.541</b>

**Source:** Company data and author

## Appendix 6: Key Financial Ratios

Key Financial Ratios	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast
<b>Liquidity Ratios</b>									
Current Ratio (x)	1,13	1,35	1,23	1,21	1,22	1,33	1,35	1,38	1,46
Quick Ratio (x)	0,68	0,85	0,75	0,63	0,76	0,87	0,88	0,90	0,97
Cash Ratio (x)	0,20	0,36	0,30	0,20	0,32	0,43	0,44	0,46	0,53
<b>Efficiency Ratios</b>									
Total Assets Turnover (x)	0,85	0,82	0,67	0,58	0,61	0,61	0,62	0,64	0,65
Accounts Receivables Turnover (x)	7,62	7,95	7,80	7,48	7,48	7,48	7,48	7,48	7,48
Collection Period (days)	47,93	45,91	46,79	48,83	48,83	48,83	48,83	48,83	48,83
Inventory Turnover (x)	4,48	3,85	4,36	3,35	4,32	4,32	4,32	4,32	4,32
Days in Inventory (days)	81,49	94,82	83,76	108,90	84,58	84,58	84,58	84,58	84,58
Payables Turnover (x)	3,13	3,08	3,27	3,16	3,16	3,16	3,16	3,16	3,16
Payables Period (days)	116,46	118,60	111,56	115,54	115,54	115,54	115,54	115,54	115,54
Operating Cycle (days)	129,42	140,73	130,55	157,73	133,41	133,41	133,41	133,41	133,41
Cash Cycle (days)	12,95	22,13	18,99	42,19	17,86	17,86	17,86	17,86	17,86
Fixed Assets Turnover	1,89	2,00	1,64	1,38	1,46	1,50	1,55	1,61	1,69
<b>Profitability Ratios</b>									
Gross Profit Margin (%)	41,9%	43,0%	40,6%	39,7%	39,7%	39,7%	39,7%	39,7%	39,7%
EBITDA Margin (%)	14,1%	17,8%	18,9%	15,6%	16,3%	16,6%	16,8%	17,1%	17,4%
EBIT Margin (%)	9,0%	13,3%	13,0%	8,6%	9,1%	8,9%	8,7%	8,6%	8,4%
Net Profit Margin (%)	6,1%	9,4%	8,5%	5,6%	5,6%	5,6%	5,5%	5,5%	5,5%
ROA (%)	5,2%	7,7%	5,7%	3,3%	3,4%	3,4%	3,5%	3,5%	3,6%
ROCE (%)	10,3%	14,3%	10,8%	6,1%	6,8%	6,7%	6,7%	6,8%	6,8%
ROE (%)	10,2%	14,7%	11,5%	6,2%	6,3%	6,3%	6,2%	6,2%	6,2%
EPS (x)	0,79	1,28	1,12	0,61	0,64	0,65	0,66	0,66	0,67
SG&A/Sale (%)	22,9%	21,6%	22,2%	24,6%	24,0%	23,7%	23,4%	23,2%	22,9%
<b>Solvency Ratios</b>									
Long term debt to Equity Ratio (x)	0,34	0,34	0,44	0,36	0,32	0,32	0,28	0,25	0,23
Equity Multiplier (x)	1,96	1,91	2,03	1,90	1,86	1,85	1,80	1,77	1,75
Net debt/EBITDA	2,13	1,79	2,20	2,80	2,40	2,32	2,07	1,85	1,72
Debt to EBITDA	2,26	1,63	2,48	3,80	3,15	3,17	2,86	2,56	2,44
Interest Coverage Ratio (x)	5,58	7,72	7,77	7,27	5,55	5,93	6,35	6,81	7,30

**Source:** Company data and author



## Appendix 7: Revenues Breakdown

Sales Breakdown - EUR millions	Unit	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast
Consumer Board	Tones	2.816.000	2.916.000	2.812.000	2.783.880	2.781.902	2.779.926	2.777.951	2.775.977	2.774.005
ASP		888	894	906	910	919	928	938	947	956
<i>Consumer Board Sales</i>		2.501	2.608	2.547	2.534	2.557	2.581	2.604	2.628	2.652
YoY			4,3%	-2,3%	-0,5%	0,9%	0,9%	0,9%	0,9%	0,9%
% Total Sales		24,9%	24,9%	25,3%	29,4%	28,4%	28,2%	27,9%	27,6%	27,2%
Packaging Solutions (Board)	Tones	1.023.000	1.308.000	1.299.000	1.283.412	1.446.215	1.663.147	1.912.619	2.199.512	2.529.439
ASP		579	557	520	442	418	397	376	356	337
<i>Packaging Solution Board Sales</i>		592	728	675	567	605	660	719	783	854
Packaging Solutions (Corrugated)	M²	1.103.000	1.059.000	1.055.000	926.290	905.911	914.970	924.120	933.361	942.694
ASP		579	557	520	452	428	406	384	364	345
<i>Packaging Solution Corrugated Sales</i>		638	590	548	418	388	371	355	340	325
<i>Packaging Solution Sales</i>		1.230	1.318	1.223	985	993	1.031	1.074	1.123	1.179
YoY			7,2%	-7,2%	-19,4%	0,8%	3,8%	4,2%	4,6%	5,0%
% Total Sales		12,24%	12,57%	12,16%	11,4%	11,0%	11,3%	11,5%	11,8%	12,1%
Biomaterials (Pulp)	Tones	2.597.000	2.432.000	2.520.000	1.844.640	1.863.086	1.881.717	1.900.534	1.919.540	1.938.735
ASP		422	507	473	478	512	547	586	627	671
<i>Biomaterials Sales</i>		1.096	1.233	1.193	882	953	1.030	1.113	1.203	1.300
YoY			12,5%	-3,2%	-26,1%	8,1%	8,1%	8,1%	8,1%	8,1%
% Total Sales		10,9%	11,8%	11,9%	10,2%	10,6%	11,2%	11,9%	12,6%	13,4%
Wood Products	M³	4.926.000	4.932.000	4.753.000	4.173.134	4.256.597	4.384.295	4.515.823	4.651.298	4.790.837
ASP		319	304	307	297	291	285	280	274	268
<i>Wood Products Sales</i>		1.573	1.497	1.457	1.241	1.240	1.251	1.263	1.275	1.286
YoY			-4,8%	-2,7%	-14,8%	-0,1%	0,9%	0,9%	0,9%	0,9%
% Total Sales		15,7%	14,3%	14,5%	14,4%	13,8%	13,7%	13,5%	13,4%	13,2%
Paper	Tones	4.713.000	4.591.000	4.130.000	3.287.480	3.451.854	3.231.311	3.024.858	2.831.596	2.650.682
ASP		606	654	678	685	724	766	810	856	906
<i>Paper Sales - EUR million</i>		2.857	3.004	2.800	2.251	2.500	2.475	2.450	2.425	2.401
YoY			5,1%	-6,8%	-19,6%	11,0%	-1,0%	-1,0%	-1,0%	-1,0%
% Total Sales		28,4%	28,6%	27,8%	26,1%	27,8%	27,0%	26,2%	25,5%	24,7%
<i>Forest - EUR million</i>		788	826	835	719	755	793	832	874	918
YoY		-	4,8%	1,1%	-13,9%	5,0%	5,0%	5,0%	5,0%	5,0%
% Total Sales		7,8%	7,9%	8,3%	8,3%	8,4%	8,7%	8,9%	9,2%	9,4%
Total Sales		10.045	10.486	10.055	8.612	8.998	9.160	9.337	9.528	9.736

**Source:** Company data and author

## Appendix 8: EBITDA Margins by Business Division

EBITDA Margin - EUR in millions	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast
<b>Consumer Board Sales</b>	<b>413</b>	<b>384</b>	<b>411</b>	<b>538</b>	<b>556</b>	<b>580</b>	<b>606</b>	<b>635</b>	<b>666</b>
EBITDA Margin	16,5%	14,7%	16,1%	21,2%	21,7%	22,5%	23,3%	24,2%	25,1%
Contribution	29,1%	20,5%	21,6%	40,0%	37,9%	38,2%	38,6%	38,9%	39,3%
<b>Packaging Solution Sales</b>	<b>234</b>	<b>311</b>	<b>200</b>	<b>138</b>	<b>145</b>	<b>156</b>	<b>169</b>	<b>183</b>	<b>200</b>
EBITDA Margin	19,02%	23,60%	16,35%	13,96%	14,65%	15,16%	15,71%	16,30%	16,95%
Contribution	16,49%	16,64%	10,52%	10,22%	9,93%	10,30%	10,73%	11,23%	11,79%
<b>Biomaterials Sales</b>	<b>363</b>	<b>519</b>	<b>324</b>	<b>150</b>	<b>218</b>	<b>244</b>	<b>273</b>	<b>290</b>	<b>300</b>
EBITDA Margin	33,1%	42,1%	27,2%	17,0%	22,9%	23,7%	24,5%	24,1%	23,1%
Contribution	25,6%	27,8%	17,0%	11,1%	14,9%	16,1%	17,4%	17,8%	17,7%
<b>Wood Products Sales</b>	<b>137</b>	<b>198</b>	<b>147</b>	<b>157</b>	<b>124</b>	<b>130</b>	<b>90</b>	<b>95</b>	<b>99</b>
EBITDA Margin	8,7%	13,2%	10,1%	12,6%	10,0%	10,4%	7,1%	7,4%	7,7%
Contribution	9,7%	10,6%	7,7%	11,6%	8,5%	8,6%	5,7%	5,8%	5,9%
<b>Paper Sales</b>	<b>220</b>	<b>345</b>	<b>279</b>	<b>135</b>	<b>117</b>	<b>77</b>	<b>74</b>	<b>76</b>	<b>62</b>
EBITDA Margin	7,7%	11,5%	10,0%	6,0%	4,7%	3,1%	3,0%	3,2%	2,6%
Contribution	15,5%	18,5%	14,7%	10,0%	8,0%	5,1%	4,7%	4,7%	3,6%
<b>Forest</b>	<b>52</b>	<b>112</b>	<b>540</b>	<b>229</b>	<b>305</b>	<b>330</b>	<b>359</b>	<b>352</b>	<b>367</b>
EBITDA Margin	6,6%	13,6%	64,7%	31,8%	40,4%	41,6%	43,1%	40,2%	40,0%
Contribution	3,7%	6,0%	28,4%	17,0%	20,8%	21,7%	22,8%	21,6%	21,7%
<b>Total Operational EBITDA</b>	<b>1.419</b>	<b>1.869</b>	<b>1.901</b>	<b>1.346</b>	<b>1.465</b>	<b>1.517</b>	<b>1.572</b>	<b>1.631</b>	<b>1.694</b>

**Source:** Company data and author

## Appendix 9: Financial Assumptions

INCOME STATEMENT	NOTES	2020F	2021F	2022F	2023F	2024F	2025F	Assumptions
Consumer Board - <b>Production tones</b>	YoY	-1,0%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	Accelerated structural decline in demand lead to clearly lower paper deliveries, for 2020, volume will decrease at 1%, For the rest of the forecasted years it is expected the 3Y historical average.
Consumer Board - <b>ASP</b> EUR/Ton	YoY	0,5%	1,0%	1,0%	1,0%	1,0%	1,0%	Decrease in ASP due to lower containerboard price during Covid-19. However, it is expected a recovery in prices for the rest of the forecasted period.
Packaging Solutions (Board) - <b>Production tones</b>	YoY	-1,2%	12,7%	15,0%	15,0%	15,0%	15,0%	Decrease in deliveries given the increasing E-commerce during the Pandemic situation. However, digitalization also leads to increase in packaging and deliveries of food and liquids. It is expected a recovery for the rest of the forecasted years given the business unit's potential.
Packaging Solutions (Board) - <b>ASP</b> EUR/Ton	YoY	-15,0%	-5,2%	-5,2%	-5,2%	-5,2%	-5,2%	Significantly lower prices expected in containerboard but partly offset by the increasing demand. Decrease in prices based the historical average decline.
Packaging Solutions (Corrugated) - <b>Production m²</b>	YoY	-12,2%	-2,2%	1,0%	1,0%	1,0%	1,0%	Lower volume in China Packaging decrease sales during the 2020. For the remining forecasted year it is expected a recovery given the historical average growth
Packaging Solutions (Corrugated) - <b>ASP</b> EUR/m²	YoY	-13,1%	-5,2%	-5,2%	-5,2%	-5,2%	-5,2%	Due to the decrease in raw materials, lower box prices are expected a slight recovery from 2021 but following the decelerated trend.
Biomaterials (Pulp) - <b>Production tones</b>	YoY	-26,8%	1,0%	1,0%	1,0%	1,0%	1,0%	Increase in pulp delivery but offset by negative foreign exchange rate impact during the 2020. Nevertheless, it is expected a recovery following the historical average growth.
Biomaterials - <b>ASP</b> EUR/Ton	YoY	1,0%	7,0%	7,0%	7,0%	7,0%	7,0%	Decrease in pulp prices in 2020 with an expected increment given the historical average.
Wood Products - <b>Production m³</b>	YoY	-12,2%	2,0%	3,0%	3,0%	3,0%	3,0%	Delivery restrictions shows a decrease in volume in 2020, it is expected a recovery given the strong demand of the US Market and the historical average growth of this unit.
Wood Products - <b>ASP</b> EUR/m³	YoY	-3,0%	-2,0%	-2,0%	-2,0%	-2,0%	-2,0%	Sales prices continued to decline especially in, sawn goods and paper
Paper - <b>Production tones</b>	YoY	-20,4%	5,0%	-6,4%	-6,4%	-6,4%	-6,4%	Accelerated demand decline and additional pressure on all paper grades lead to a 20% decrease in volume for 2020. It is expected a recovery for 2021 thanks to strong relationship with clients in this industry. However, the industry continues its historical average decline for the rest of the forecasted years.
Paper - <b>ASP</b> EUR/Ton	YoY	1,0%	5,8%	5,8%	5,8%	5,8%	5,8%	Based on historical average growth
Sales - Forest - EUR million	YoY	-13,9%	5,0%	5,0%	5,0%	5,0%	5,0%	Assume to grow in line with historical data, this potential division grow in line with the strategic integrated wood supply.
Other operating income	YoY	5,9%	5,9%	5,9%	5,9%	5,9%	5,9%	Equal to 2019YE percentage growth
COGS - Materials and Services	% Sales	-60,3%	-60,3%	-60,3%	-60,3%	-60,3%	-60,3%	Assume to grow in line with revenue, with the proportional historical data.
Transportation costs	% Sales	-9,0%	-9,0%	-9,0%	-9,0%	-9,0%	-9,0%	Assume to grow in line with revenue, with the proportional historical data.
Personnel expenses	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Assume constant over the forecasted period.
Other operating expenses	YoY	11,6%	11,6%	11,6%	11,6%	11,6%	11,6%	Assume to grow in line with revenues, with the proportion historical data.
Depreciation and Amortization		604	651	701	756	814	878	Appendix 12
Financial income	YoY	-1,2%	12,7%	15,0%	15,0%	15,0%	15,0%	Assume constant over the forecasted period
Financial expense	YoY	-6,2%	-6,2%	-6,2%	-6,2%	-6,2%	-6,2%	Based on a 5y historical average YoY decline.
Income tax	% EBT	24,7%	24,7%	24,7%	24,7%	24,7%	24,7%	Assumed constant adjusted income tax rate of 24,7% based on historical data.

Source: Author

BALANCE SHEET	NOTES	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast	Assumptions
<b>Assets</b>								
Goodwill		302	302	302	302	302	302	Assumed to be constant over the forecasting period.
Other intangible assets (OIA)		171	170	169	167	165	162	OIA t = OIA in t-1 + CAPEX in OIA - Amortization OIA. Represents 11,4% of CAPEX for intangible assets.
Property, plant and equipment (PP&E)		6.223	6.180	6.115	6.023	5.903	5.752	PP&E t = PP&E in t-1 + CAPEX in PP&E - Depreciation PP&E. Represents 88% of Total CAPEX.
Biological assets (BA)		4.667	5.652	6.632	7.609	8.582	9.551	BA t = BA in t-1 + CAPEX in BA - Amortization BA. Represents 88% of CAPEX for intangible assets.
Equity accounted investments	YoY	-6,6%	-6,6%	-6,6%	-6,6%	-6,6%	-6,6%	Assumed equal to 3Y historical average growth.
Other non-current assets	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Assumed to be constant over the forecasting period.
Inventories	% Sales	18,0%	14,0%	14,0%	14,0%	14,0%	14,0%	Assumed the forecast as a % of sales taken from the historical average of the past three years. During 2020 it is assumed an increase due to deliveries restrictions and unexpected decrease in sales.
Tax receivables	YoY	10,6%	10,6%	10,6%	10,6%	10,6%	10,6%	Assumed equal to historical average growth.
Operative receivables	% Sales	13,4%	13,4%	13,4%	13,4%	13,4%	13,4%	Based on a 3Y historical average as a percentage of sales, it varies close to sales.
Interest-bearing receivables	YoY	-46,4%	-46,4%	-46,4%	-46,4%	-46,4%	-46,4%	Assumed equal to 3Y historical average growth.
<b>Equity and liabilities</b>								
Share capital	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Equal to 2019YE carrying amount
Share premium	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Equal to 2019YE carrying amount
Fair value reserve	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Equal to 2019 nominal value.
Cumulative translation adjustment	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Equal to 2019 nominal value.
Invested non-restricted equity fund	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Equal to 2019 nominal value.
Non-controlling Interests	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Equal to 2019 nominal value.
Provisions	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Equal to 2019 nominal value.
Deferred tax liabilities	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Equal to 2019 nominal value.
Non-current interest-bearing liabilities	YoY	-12,7%	-9,0%	0,6%	-9,8%	-10,3%	-4,5%	Appendix 12
Other non-current operative liabilities	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Equal to 2019 nominal value.
Current portion of non-current debt	YoY	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%	Assumed on a 3Y historical average growth.
Interest-bearing liabilities	YoY	-2,0%	-2,0%	-2,0%	-2,0%	-2,0%	-2,0%	Assumed on a 3Y historical average growth.
Bank overdrafts	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Equal to 2019 nominal value.
Other provisions	YoY	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	Equal to 2019YE carrying amount
Other operative liabilities	% COGS	31,7%	31,7%	31,7%	31,7%	31,7%	31,7%	Assumed on a 5Y historical average as a percentage of COGS
Tax liabilities	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2019YE carrying amount

**Source:** Author

## Appendix 10: Interest-bearing liabilities

Interest-bearing liabilities consider liabilities with an original maturity greater than 12 months. In case of the bonds, the repayment it is allocated according to the maturity date. It is not expected to issue new bonds during the forecasted period. Loans from credit institution consider the historical average percentage Sales/Loans from 2020-2025. In the balance sheet. It is estimated the percentage change given the value forecasted in this table.

Non-current interest-bearing liabilities Repayment	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast
2017	127	-	-	-	-	-	-	-	-
1993-2019	45	45	-	-	-	-	-	-	-
2006-2036	259	259	264	264	264	264	264	264	264
2012-2019	175	175	-	-	-	-	-	-	-
2016-2023	298	298	299	299	299	299	-	-	-
2017-2027	298	298	299	299	299	299	299	299	299
2018-2028	-	298	298	298	298	298	298	298	298
2019-2024	-	-	167	167	167	167	167	-	-
<b>Total Fixed Rate Bond Loans</b>	<b>1.202</b>	<b>1.373</b>	<b>1.327</b>	<b>1.327</b>	<b>1.327</b>	<b>1.327</b>	<b>1.028</b>	<b>861</b>	<b>861</b>
2015-2025	125	125	125	125	125	125	125	125	-
2015-2027	25	25	25	25	25	25	25	25	25
2019-2021	-	-	287	287	-	-	-	-	-
2019-2024	-	-	119	119	119	119	119	-	-
2019-2026	-	-	95	95	95	95	95	95	95
Statutory Pension Loans 2020	-	-	-	276	276	276	276	276	276
<b>Total Floating Rate Bond Loans</b>	<b>150</b>	<b>150</b>	<b>651</b>	<b>927</b>	<b>640</b>	<b>640</b>	<b>640</b>	<b>521</b>	<b>396</b>
<b>Total Bond Loans</b>	<b>1.352</b>	<b>1.523</b>	<b>1.978</b>	<b>2.254</b>	<b>1.967</b>	<b>1.967</b>	<b>1.668</b>	<b>1.382</b>	<b>1.257</b>
Loans from credits institutions	1.029	1.140	1.162	861	900	916	934	953	974
Lease liabilities	29	-	440	-	-	-	-	-	-
Finance lease liabilities	6	1	-	-	-	-	-	-	-
Derivatives finance liabilities	-	-	24	30	-	-	-	-	-
Other non-current liabilities	-	4	5	5	-	-	-	-	-
<b>Total Non-current interest-bearing liabilities</b>	<b>2.416</b>	<b>2.668</b>	<b>3.609</b>	<b>3.150</b>	<b>2.867</b>	<b>2.883</b>	<b>2.602</b>	<b>2.335</b>	<b>2.231</b>

**Source:** Company data and Author

## Appendix 11: CAPEX and Depreciations

Total CAPEX encompasses investments in Intangible and PP&E. Due to the conversion of the Oulu plant, the company is investing €150M, employed to increase capacity in the packaging sector. From 2020 onwards, total CAPEX is estimated as YoY % change, assuming a constant 3,4% based on the historical average (2017 – 2019)

Depreciation and Amortization allocated based on the historical average (2017 - 2019)

CAPEX - D&A	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast
PP&E	490	429	506	633	527	548	569	592	616
Intangible	70	62	73	91	75	78	80	83	86
<b>CAPEX</b>	<b>560</b>	<b>491</b>	<b>579</b>	<b>724</b>	<b>602</b>	<b>625</b>	<b>650</b>	<b>675</b>	<b>702</b>
Depreciation	475	456	449	528	569	613	661	712	767
Amortization	40	24	149	76	82	88	95	102	110
<b>D&amp;A</b>	<b>515</b>	<b>480</b>	<b>598</b>	<b>604</b>	<b>651</b>	<b>701</b>	<b>756</b>	<b>814</b>	<b>878</b>

*Source: Company data and author*

## Appendix 12: Discounted Cash Flow Assumptions

### 1. Weighted Average Cost of Capital (WACC)

The cost of equity is calculated using the CAPM Model. The WACC obtained varies according to the capital structure strategy forecasted.

$$Re = Rf + \beta * MRP$$

Beta $\beta$	0,84	1. It is used a Pure-Play method based on peers to get the Beta ( $\beta$ ) levered. 2. The specific Beta ( $\beta$ ) Unlevered is calculated from the previous $\beta$ levered obtained taking the average Debt to Equity of the peers. 3. It is calculated the specific ( $\beta$ ) for STE by using the D/C of the company, it varies as the capital structure strategy varies.
Country Risk Premium	0,69%	CRP is based on the CRP obtained from the paper "Market Risk Premium and Risk-Free Rate used for 69 countries in 2019: a survey" it is weighted by country's shares on revenues.
Market Risk Premium	5,7%	Weighted by countries shares on revenues, then the CRP previously obtained it is subtracted from the weighted MRP to finally get the 5,73%, This is precisely the MRP for a Rf country (Germany)
Terminal growth rate	1,2%	Calculated from the formula ( $g=(1-\text{payout ratio})*\text{ROE}$ ), the g varies according to the payout policy and ROE.
Risk Free Rate	1,1%	It is obtained from the Survey from Professor Pablo Fernandez; it is taken the Rf from Finland since STE is listed in The Helsinki stock exchange. It is not taken Germany as a benchmark given the exchange rate risk, although residual.
Cost of Debt	3,9%	Risk-Free Rate (1,1%) + Spread, calculated from the existing bonds and loan acquired by STE.

*Source: Author*

## Appendix 13: Discounted Cash Flows Analysis (FCFF)

FCFF	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast	Terminal Value
EBIT (1-tax rate)	559	613	613	614	615	616	616
D&A	604	651	701	756	814	878	878
CAPEX	724	602	625	650	675	702	878
Δ NWC	(219)	326	(11)	(14)	(16)	(18)	(18)
<b>FCFF</b>	<b>220</b>	<b>989</b>	<b>678</b>	<b>706</b>	<b>738</b>	<b>773</b>	<b>598</b>
<b>Continuing Value of CF</b>							<b>13.849</b>

(WACC)	5,52%	5,55%	5,56%	5,58%	5,61%	5,61%	5,61%
<b>Present Value of FCFF</b>	<b>-</b>	<b>-</b>	<b>643</b>	<b>633</b>	<b>626</b>	<b>622</b>	<b>11.130</b>

Terminal Growth Rate	1,2%
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Price Target	
<b>Enterprise Value</b>	<b>13.654</b>
- Debts	3.511
+ Cash	<b>910</b>
<b>Equity Value</b>	11.053
Number of shares outstanding	788,62
<b>Price Target 2021YE</b>	<b>14,02</b>

Share Price on October 30th, 2020	12,6
<b>Upside Potential</b>	<b>11,2%</b>

Source: Author

## Appendix 14: Discounted Cash Flows Analysis (FCFE)

FCFE	FY20 Forecast	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast	Terminal Value
Net Income	482	503	510	517	524	531	531
Non-Cash Charges	604	651	701	756	814	878	878
CAPEX	724	602	625	650	675	702	878
Δ NWC	(219)	326	(11)	(14)	(16)	(18)	(18)
Net Borrowing	(411)	(251)	18	(249)	(236)	(90)	(90)
<b>FCFE</b>	<b>1.180</b>	<b>1.831</b>	<b>1.843</b>	<b>1.660</b>	<b>1.762</b>	<b>2.002</b>	<b>2.178</b>
<b>Continuing Value of CF</b>							<b>11.571</b>

Re (Cost of Equity)	6,77%	6,70%	6,69%	6,62%	6,56%	6,53%	6,53%
<b>Present Value of FCFF</b>	<b>-</b>	<b>-</b>	<b>522</b>	<b>755</b>	<b>730</b>	<b>605</b>	<b>8.986</b>

Terminal Growth Rate	1,2%
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Price Target	
<b>Equity Value</b>	<b>11.598</b>
Number of shares outstanding	788,62
<b>Price Target 2021YE</b>	<b>14,71</b>

Share Price on October 30th, 2020	12,6
<b>Upside Potential</b>	<b>16,7%</b>

Source: Author

## Appendix 15: Relative Valuation

Peers Multiples				
Multiple	EV/SALES	EV/EBITDA	P/E	P/Sales
UPM	1,29	7,15	14,93	1,61
Smurfit Kappa Group PLC	1,27	6,95	16,71	0,24
Mondi PLC	1,52	6,65	12,56	2,29
1st Quartile	1,27	6,65	12,56	0,24
Median	1,29	6,95	14,93	1,61
<b>Mean</b>	<b>1,35</b>	<b>6,91</b>	<b>14,64</b>	<b>0,96</b>
3rd Quartile	1,52	7,15	16,71	2,29
<b>STORA ENSO Multiple</b>	<b>1,10</b>	<b>7,18</b>	<b>11,95</b>	<b>1,02</b>
Multiple	1,35	6,91	14,64	0,96
Enterprise Value	13.663,17	10.662,32		
Net Debt	4.193,00	4.193,00		
Equity Value	9.470,17	6.469,32	15.811,04	13.880,02
Number of shares outstanding	788,62	788,62	788,62	788,62
<b>Price Target</b>	<b>12,01</b>	<b>8,20</b>	<b>20,05</b>	<b>17,60</b>
<b>Average Price Targets</b>	<b>14,47</b>			
Share Price on October 30th, 2020	12,60	<i>Source: Thomson Reuters &amp; Author</i>		
<b>Upside Potential</b>	<b>14,80%</b>			

## Appendix 16: Dividend Discount Model (DDM)

Dividend Discount Model	FY21 Forecast	FY22 Forecast	FY23 Forecast	FY24 Forecast	FY25 Forecast	Terminal Value
Dividends paid	327	337	362	393	425	425
PV of dividends	1.578	1.338	1.077	775	425	
PV of terminal value	7.928	8.368	8.833	9.326	9.849	

Price Target	
<b>Equity value</b>	<b>9.505</b>
Number of shares outstanding	789
<b>Equity value per share</b>	<b>12,05</b>

Share Price on October 30th, 2020	12,60
<b>Downside Potential</b>	<b>-4,34%</b>

*Source: Author*

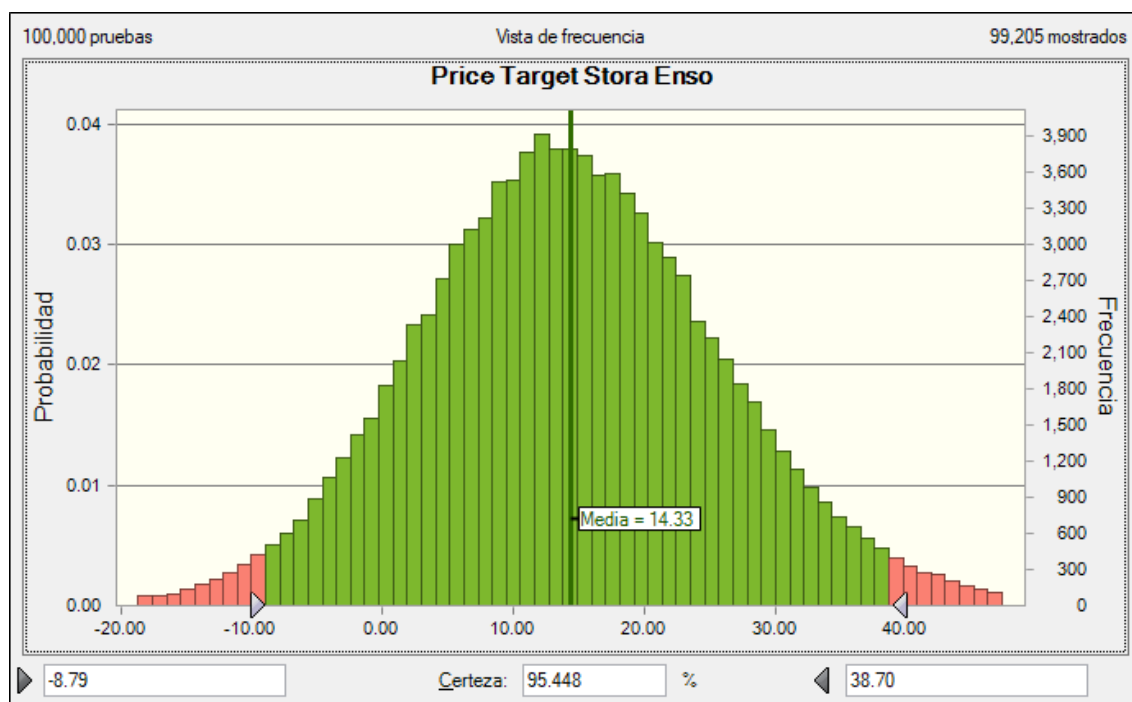


## Appendix 17: Monte Carlo Simulation

In the Monte Carlo simulation, it is considered four variables that might impact STE price target. The variables are: Gross Margin, WACC, growth rate, tax rate and Wood margin consumption.

Variables	Mean	Ste. Dev	Distribution	Explanation
% COGS	60,3%	6,0%	Normal	Analyze the sensitivity changes in the gross margin on the price target.
WACC	5,6%	0,6%	Normal	Analyze the sensitivity changes of the WACC on the price target.
Growth rate	1,2%	0,1%	Normal	Analyze the sensitivity changes in the growth rate on the price target.
Tax Rate	24,7%	2,5%	Normal	Analyze the sensitivity changes in the tax rate on the price target.
Wood Margin consumption	34,0%	3,4%	Normal	Analyze the sensitivity changes in the wood consumption margin on the price target.

The mean price target computed in the Monte Carlo Simulation is €14.33, which is similar to the TP computed in the DCF, €14.02. The variables that impact the target price the most are % COGS (96%), WACC (3%) and Growth rate (2%). The test provided certainty of 13,7% to the **HOLD** recommendation.



**Source:** Author

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Level of Risk	SELL	REDUCE	HOLD/NEUTRAL	BUY	STRONG BUY
High Risk	$0\% \leq$	$>0\% \ \& \ \leq 10\%$	$>10\% \ \& \ \leq 20\%$	$>20\% \ \& \ \leq 45\%$	$>45\%$
Medium Risk	$-5\% \leq$	$>-5\% \ \& \ \leq 5\%$	$>5\% \ \& \ \leq 15\%$	$>15\% \ \& \ \leq 30\%$	$>30\%$
Low Risk	$-10\% \leq$	$>-10\% \ \& \ \leq 0\%$	$>0\% \ \& \ \leq 10\%$	$>10\% \ \& \ \leq 20\%$	$>20\%$